

A THEORY OF GOAL SETTING & TASK PERFORMANCE

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CHAPTER

1

GOAL SETTING THEORY:

An Introduction

In this chapter we present the conceptual base of goal setting theory, the history of the concept of goal and related concepts in psychology and management, and the relationship between goal setting theory and other work motivation theories.

GOALS AS REGULATORS OF ACTION

As budding industrial/organizational psychologists in the 1960s, we were interested in the topic of motivation because this concept provided, in principle, a partial answer to the question, Why do some people perform better on work tasks than others? We agreed with the conventional assumption that human action is determined by both cognitive (e.g., knowledge) and motivational factors.

In approaching the study of motivation, however, we were faced with the problem of how to study it. Since motivation is something within the individual, it can only be observed directly within ourselves. While introspective observation is of scientific importance, motivation in other people cannot be observed directly but must be inferred. While inference is epistemologically abhorrent to some psychologists and leads them to reject internal states as explanatory concepts, it is not to us or to cognitive psychologists in general. As Arnold (1960) pointed out, to do away with inference in science, if one hopes to understand the world, is never possible—even in the hard sciences.

Given our belief that it was legitimate to look for explanations of action within the individual, the next question became, What should we look at? There

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were many competing concepts in the field: drives, needs, values, attitudes, motives, instincts, and so on. We were greatly influenced here by T. A. Ryan (1970), who was working on his treatise *Intentional Behavior* while the first author was a doctoral student at Cornell between 1960 and 1964. Ryan, who had in turn been influenced by the Wurzburg school, by Lewin (a Gestalt psychologist), and by C. A. Mace (1935), argued that the most immediate and simplest way to explain, from a motivational standpoint, an individual's action in a specific situation was to look at what the person was trying to do in that situation.

Ryan (1970) observed that "to the layman it seems a simple fact that human behavior is affected by conscious purposes, plans, intentions, tasks and the like" (p. 18). At about the same time, Locke observed that "the man in the street, taking for granted the causal efficacy of purposes, uses this term every day to explain goal-directed action. He explains his changing jobs by his consciously held *purpose* to further his career and . . . his son's going to college by his conscious *purpose* to get an education" (1969b, p. 991). In short, goal setting theory had its ultimate roots in the simplest type of introspection, the kind that can be performed by anyone. Furthermore, also based on introspective evidence, it unapologetically assumes that goals (ideas of future, desired end states) play a causal role in action. Such assumptions were virtually banned from psychology when behaviorism was the dominant American school, but with the cognitive revolution of the 1970s, such views have become respectable and properly so.

Consider now the question posed earlier as to why some people perform better on work tasks than others. Of course, there are many answers to this question. People differ greatly in their ability, their knowledge, and the strategies they use to perform tasks. However, another important but frequently overlooked reason why people perform differently is that they have different goals. They try for different outcomes when they work on a task. We use the term *goal* as the generic concept that encompasses the essential meaning of terms such as intention, task, deadline, purpose, aim, end, and objective. All of these have in common the element that there is something that the person wants to achieve. (The differences between these concepts are explained later in this chapter.)

The concept of goal-directed action, however, has wider significance. Goal directedness is "a cardinal attribute of the behavior of living organisms. . . . It may be observed at all levels of life: in the assimilation of food by an amoeba, in the root growth of a tree or plant, in the stalking of prey by wild animals, and in the activities of a scientist in a laboratory" (Locke, 1969b, p. 991).

Among living organisms there are two categories of goal-directed action (Binswanger, 1986; Locke, 1969b): (a) nonconsciously goal-directed or vegetative actions such as photosynthesis, digestion, and blood circulation; and (b) consciously goal-directed or purposeful actions such as hunting for food and productive work. The former can be found at all levels of life from plants on up, whereas the latter only occur in animals and human beings.

Binswanger (1986) argued that both types of goal-directed action share three common features that justify calling the action goal-directed:

(1) *Self-generation*. The actions of living organisms are fueled by energy sources integral to the organism as a whole, i.e., the energy source is not "put into it" as the motor into a torpedo but is integral to every cell. Furthermore, this

energy is available for many different actions—depending on environmental circumstances and the organism's needs.

(2) *Value-significance*. A living organism can go out of existence; its survival is conditional. To maintain its existence, every living organism must take specific actions to fulfill its needs. If it does not take such actions, it dies. Life maintenance is the ultimate explicit or implicit end of such action and the standard of successful action. Thus all goal-directed action has value significance for the organism. In contrast, the continued existence of inanimate objects does not require them to take any action; they will remain "as is" unless changed or destroyed by external forces. Their movements have no value significance.

(3) *Goal-causation*. There has been much confusion since the time of Aristotle about the cause of goal-directed or teleological action. For example, it has been claimed that final causation, that is, causation by the goal of the action, is a contradiction in terms in that it suggests that the future is the cause of the present. Actually, there are two types of goal causation and neither one involves a contradiction.

In purposeful action, it is the individual's *idea* of and desire for the goal or end that causes action. The idea serves as the efficient cause, but the action is aimed toward a future state.

In nonconsciously goal-directed action (e.g., the actions of the heart and lungs), the principle is the same, but the explanation is more complex. Binswanger (1986) observed that natural selection explains the adaptation of actions to survival in the same way that it explains the adaptation of structural features of the organism to survival:

For example, my heart will be able to beat tomorrow only if I am alive tomorrow. But I will survive only if my blood is circulated today. The present blood circulation is thus an indirect cause of the future heartbeat. And since blood circulation is the *goal* of the heartbeat, this means that subsequent heartbeats are caused by the survival value of that action's goal, as attained in earlier instances of that very action. . . . The vegetative actions of living organisms are teleological—i.e., goal directed—because these actions have been naturally selected for their efficacy in attaining ends having survival value for the agent. . . . in vegetative action a *past instance* of the "final cause" functions as the efficient cause. (pp. 4–5)

To summarize, *the ultimate biological basis of goal-directed action is the organism's need to sustain its life by taking the actions its nature requires*. In the lower organisms such as plants, these actions are automatic and nonconscious. In people and animals, some of the required actions must be consciously goal-directed. Purposefully goal-directed actions, which are the concern of this theory, are a subcategory of goal-directed action in which goal attainment is caused by consciousness (e.g., by the individual's desire, vision, expectation, anticipation, imagination, aspiration).

The denial of the causal efficacy of consciousness is a fundamental reason why behaviorism failed as a model for explaining human action (Bandura, 1986; Locke, 1977, 1980b). Behaviorists argued that behavior was controlled by past reinforcements, by events that followed previous responses or

actions. They never explained, however, the nature of the link between the past and the future. The so-called law of effect or law of reinforcement was at best descriptive, namely: a reinforcer is something that follows a response and somehow makes subsequent responses more likely. When pressed, behaviorists will claim that the connecting events are strictly physiological, but this reductionist argument has never been proven.

The actual explanation of what is called the reinforcement effect is that every consequent that has a subsequent effect becomes an antecedent in that it generates expectations about the future, which in turn regulate action (Bandura, 1977; 1986). To offer as an explanation, as the behaviorists do, that "the behavior changed because it was reinforced" simply cuts off search for the actual causes of the action. For example: Why does a reinforcer reinforce and by what means? What is a reinforcer? What makes it work? Behaviorists have at best a superficial technology of behavior rather than a science of behavior.

The concept of purposeful action applies to both people and animals, although not to the same extent. People share the perceptual level of awareness with the lower animals but unlike them have the power to regulate their own consciousness. Animals are guided by sensory-perceptual mental contents and processes (i.e., desires for specific objects); their time frame is limited to the immediate past, immediate future, and the present. The capacity to grasp the language of even the most "intelligent" species is not even remotely close to the capacity of human children in this respect (see Terrace, 1979).

Human beings have the capacity to go beyond sensory material. They possess the capacity for reason. They can form concepts based on sensory information and go on to form higher-order concepts based on integrations of lower-order concepts (Rand, 1969). They can project thoughts backward in time and forward through millennia; they can detect objects that no human eye can see; they can imagine things being different from what they are; they can project what might be and what ought to be; they can infer and deduce theories and conclusions; they can count and measure from milliseconds to light years; they can make machines and write documents that change the course of history; and they can study themselves. None of this is possible to animals.

Depending on the amount and quality of people's thinking, they may program their minds with few goals or with many, with clear goals or vague ones. They may set goals that either further their happiness and well-being or undermine and negate them. They can also fail to focus their minds and try to exist in an unfocused or drugged stupor. Thus people have a choice as to whether they set goals, and as to what type of goals they set. But since rational, goal-directed action is essential for happiness and survival, we can say that purposeful action is action that is quintessentially human.

Goal setting theory assumes that human action is directed by conscious goals and intentions. However, it does not assume that all human action is under fully conscious control. Furthermore, there are degrees of conscious self-regulation. For example, some actions are not consciously intended, such as sneezing, tics, and mannerisms. There are also actions that reflect a conflict between conscious intent and subconscious desire, as in a person who feels subconscious hostility toward another person but consciously tries to be polite.

An insulting or critical comment may slip out in a conversation. Such actions may be more common among people with severe psychological problems but are certainly not confined to such people.

We agree with Ach (Ryan, 1970) and more recently with Klinger (1987) that a goal or purpose does not have to be in conscious awareness every second during goal-directed action in order for it to regulate action. Klinger noted, for example, that a student pursuing a Ph.D. degree does not think of that goal every minute. Once the student begins the doctoral program, he or she will normally focus on subgoals such as mastering the material in a given course, finding a thesis topic, or developing plans for reaching those subgoals (e.g., how to study; how to carry out the dissertation research). Getting the degree is the integrating goal behind those subgoals and plans. While not always in conscious awareness, the end goal is easily called into awareness—e.g., the student's asking himself or herself, Why am I here? Furthermore, it may go in and out of awareness at different times. For example, a student who is tired and wants to avoid homework one evening may remind himself or herself that studying is necessary to get the degree. Focusing on the end goal all the time would actually be disruptive to performance in many situations, because it would distract the individual from taking the actions needed to reach it, especially actions requiring new learning. Usually, a goal, once accepted and understood, will remain in the background or periphery of consciousness, as a reference point for guiding and giving meaning to subsequent mental and physical actions leading to the goal.

- In habitual action, there is some degree of conscious initiation of the action, but once initiated, the action flows with minimal (but not zero) conscious regulation. A case in point would be driving to work using the same route day after day and year after year. After a while, only minimal attention needs to be paid to the action. In fact, more conscious control would be needed to break the pattern (e.g., take a different route) than to maintain it.

- In the case of learned skills, aspects of an action sequence (such as dribbling and shooting a basketball) that were originally conscious may become automatized through repeated practice. The individual only needs to focus on the component motions if something goes wrong. Otherwise he or she is free to focus on the performance outcome desired and the means to attain it, such as game strategy.

- Goal theory does not assume that every aspect of a consciously intended action is consciously intended. For example, if one has an intent to lift one's arm, the arm normally goes up even though there is no conscious intent to move each muscle involved, nor to send specific electric signals to the brain and back down to the arm. The end result is intended, but the means, which in this case are physiological, involve automatized processes that do not require direct conscious control in order to operate. Control over such actions is indirect.

There are also actions that, although consciously initiated, do not correspond to the intended action or do not achieve the desired goal (Locke, 1968b). This can be due to many reasons, including lack of sufficient knowledge or ability, external blocks to performance, illness, subconscious conflicts (as noted above), or changed circumstances. Such actions could be called goal-directed, but unsuccessful. It is an empirical question as to just what circum-

stances facilitate or prevent goal-performance correspondence. Many of these circumstances are described in this book.

Nor does goal setting theory assume that every performance outcome is consciously foreseen. For example, a businessperson with a goal to double sales will not necessarily intend or foresee all the consequences of achieving such a goal (e.g., greater strains on company resources and on family life). People can, in crucial respects, foresee and plan for the future, but they are not omniscient.

Caveats aside, goal setting theory does assume that the goals people have on a task influence what they will do and how well they will perform. Goal setting theory specifies the factors that affect goals, and their relationship to action and performance.

THE CONCEPT OF GOAL AND RELATED CONCEPTS

Since we have chosen to use the term *goal* in preference to other related concepts such as intention, task, or purpose, it will be useful to give our reasons and to show the relationship between the term *goal* and these other concepts.

Figure 1-1 shows our classification of these concepts. First, we distinguish between concepts that stress the conscious or psychological element and those that stress the nonconscious or external element, even though in each case the other is implied. Next we classify on the basis of whether the term stresses behavior or

FIGURE 1-1 Classification of Goal-Related Concepts

Type of Concept	Conscious aspect stressed; external aspect implied	Borderline	Nonconscious (external or physiological) aspect stressed; conscious aspect implied
Emphasis on behavior or action	intent, intention	norm	task
Emphasis on the end or aim of action	level of aspiration purpose	goal (personal goal) aim end objective standard	budget deadline bogey assigned goal quota
Emphasis on the motivational element underlying goals	purpose value motive desire wish attitude		drive need instinct

action itself, the end or aim of the action, or the motivational force underlying the aim or goal.

Starting in the upper-left cell, the term *intention* refers specifically to a psychological state. It may refer to a goal (e.g., I intend to score twenty points in this basketball game), but it more often refers to a determination to take a certain action (e.g., I intend to mail this letter, get dressed, go to work, call my lawyer).¹ The term *norm* is placed between the two top cells because it refers to an appropriate or desirable way of acting shared by a group of people; thus it refers to what the actor feels is appropriate, but it also stresses what other people believe to be acceptable behavior. In the upper right cell, the term *task* refers to a piece of work to be accomplished. The emphasis is on the work (the external), but it is implied that the work is intended to be accomplished by somebody.

Moving to the left cell in the second row, *level of aspiration* refers clearly to the level of performance one is trying to attain on a task (but see Chapter 5 for different meanings of this concept). *Purpose* refers unambiguously to a consciously held goal, but it may also refer to a motive underlying a goal (what is your purpose in trying to buy out company X?); thus the arrow to the bottom cell.

The term *goal* (the aim or end of an action) is placed between the left and right columns because we usually think of goals as something we consciously want to attain, yet the thing we want to attain is usually something outside us (my goal is to increase sales by 10%). The term *personal goal* distinguishes between assigned and actual (operative) goals. Similarly, the term *aim* also suggests a conscious desire (I am aiming for a scholarship) but also indicates there is something out there we are aiming for. The terms *end* and *objective* place emphasis on the end result of our planned efforts or the place where we are going, but there is a strong implication that somebody is deliberately trying for them. In the same way the term *standard* (something set up as a rule to measure or evaluate things) implies an internalized concept of appropriate action but also may refer to an external criterion (company standard—often a minimal level of acceptable performance).

Turning to the next cell to the right, the emphasis is more external. A *budget* specifies a limit on the amount of money to be spent by an individual, department, or organization. The stress is on the “out there,” although it is implied that somebody is trying to meet it. Similarly, a *deadline* refers to a time goal, the time by which some task is supposed to be completed. The focus is on the external (time) aspect, but again the deadline is implicitly somebody’s deadline. A *bogey* is a somewhat outdated term referring to an amount of production expected of the employees by management. The bogey is out there, but it is expected that the workers will accept it as their personal goal. The terms *assigned goal* and *quota* are similar in meaning.

Turning to the last row, the concepts of *value*, *motive*, *desire*, *wish* and *attitude* can be viewed as concepts that underlie an individual’s choice of goal or decision to accept a goal (e.g., I am trying to increase sales by 10% because I want to please the boss, get promoted, prove that I can do the job, see myself as a good

¹Kuhl (1986) defined *intention* as “an activated plan to which an actor has committed herself or himself” (p. 282). If one takes “plan” to mean a behavior or sequence of behaviors and “committed” to mean entailing a determination to act, then his definition is equivalent to ours (which is based on typical dictionary definitions).

person, etc.). Fishbein and Azjen's (1975) model explicitly used attitudes as predictors of intentions. All these terms refer to consciousness (although values and motives can be subconscious as well as conscious). In contrast, terms in the bottom-right cell such as *drive*, *need*, and *instinct* (disregarding the issue of whether they are all valid concepts) most typically refer to physiologically based energizers that could affect goal choice, although some theories that rely on such concepts would claim that they control action directly (e.g., Hull).

Combined terms such as "task goal" have occasionally been used in the literature, but such terms seem unnecessarily complicated and redundant. Goal or personal goal would do just as well. Some researchers use the term *intentions* to refer to personal goals in order to distinguish them from assigned goals, but the term *personal goal* seems more consistent.

Why, then, did we choose the term *goal* as the key concept in our theory? First, we were interested in how people perform on tasks so we wanted a term that stresses the end result rather than the behavior alone. Thus our preference for goal over intention. The term *task*, used by Ryan (1958), had too much of an external focus for our needs. *Purpose* was a less than desirable choice because of its frequent reference to underlying motives. The term *level of aspiration* was too narrow because it ruled out goals that did not involve a specific level of performance, and yet which we frequently studied (e.g., try to do your best). *Aim* and *end* also seemed a bit narrow, as did *standard*, which focuses mainly on a minimum amount of work. *Objective* was already widely used in the Management by Objectives literature and, for our purposes, put too much focus on end results (e.g., profits) and too little on shorter-range ends that could guide actions. *Budget*, *deadline*, and *bogey* had narrower meanings and focused mainly on the external. Thus we found that the term *goal* was the most appropriate concept while recognizing that there were many other terms whose meanings were highly similar. Thus it is not surprising that in the literature one often sees many of these concepts used interchangeably.

LEVELS OF EXPLANATION

Explaining human actions by specifying a person's goal does not constitute a full explanation of that action. Explanations, including explanations of human action, exist on different levels (Ryan, 1970). Goal setting theory provides an immediate or first-level explanation of action. Goals and intentions are viewed as immediate precursors and regulators of much, if not most, human action.

A second-level explanation of action would deal with the question, Where do the goals come from? At this level we would try to account for the goals themselves by reference to other motivational concepts as well as to events and conditions outside the person. We would look, for example, at the individual's motives or values (what he or she seeks to gain and/or keep, considers desirable, beneficial, etc.; Locke, 1976). Values are more general than goals; goals are more situationally and task specific. For example, one might value ambition, whereas one's goal would be to become a company president or a full professor within fifteen years. We could also look at value or personality syndromes that would predispose individuals to set certain types of goals in certain classes of situations.

McClelland (1961) argued that people high in the achievement motive are prone to set moderately challenging goals in situations where they have immediate feedback, and can control the outcome, and where external incentives are not stressed. The Type A personality is characterized as a compulsive goal setter who will try to do more and more in less and less time, especially when threatened by competition from others (see Chapter 9).

Situational factors would include such influences as the demands or requests of authority figures, peer pressure, role models, cultural standards, incentives, rewards, and punishments. An individual's task-specific goals might also be connected to other, longer-range goals such as "I want to double sales this year because I want this to be the biggest company in the U.S. in ten years."

A third-level explanation would attempt to identify the sources and roots of the individual's values, motives, and personality. The only motivational concept broader and more fundamental than that of values is that of needs: the objective requirements of the individual's survival and well-being. For example, the goal to go shopping for specific dinner items could be tied to the value of nutritious food, which would in turn derive (motivationally) from the individual's need for food. As Nuttin (1984) observed, "a subject's motivational direction toward a specific object [goal] should be conceived as the concretization or canalization of a more general need" (p. 67).

The concept of needs does not account for individual differences, however, because people have the same basic needs (everyone needs food, water, sleep, self-esteem, etc.) But the concept of needs is necessary to explain why people act at all, and to explain why certain broad categories of action (e.g., eating) are universal.

One assumption of this division into levels is that the higher-level factors (second and third levels) affect action through the lower levels—i.e., that needs affect action through their effect on values and values through their effect on goals (Locke & Henne, 1986). This assumption has seldom been tested, and it may not even be true as stated. Subconscious values may affect action without the individual's having conscious awareness of any goals based on such values. Our assumption appears somewhat plausible, however, if only because immediate level theories, focusing on task-specific motives and perceptions (e.g., goal setting theory, turnover intention theory, and social-cognitive theory) seem to have been far more successful in accounting for human action than the more general value theories such as McClelland's "need" achievement theory (Locke & Henne, 1986).

THE DOMAIN OF GOAL SETTING THEORY

Goal setting theory, as developed in this book, is confined mainly to the first level of explanation and goes somewhat into the second. At the first level we ask the fundamental question, What is the relationship between goals and action, or more specifically, goals and task performance? And what factors affect this relationship? Cognitive factors, especially feedback and expectancy/self-efficacy and, to an increasing degree, task strategies, play a major role in the theory (see Chapters 3, 4 and 8). At the second level we look at some of the factors that may affect goal choice and goal commitment, and also briefly at the relation of goal choice to personality (see Chapters 5 and 9).

As noted earlier, the reason for developing the theory was our interest in understanding work motivation. We wanted to explain why some people worked harder than others or performed better than others on a task independently of their ability and knowledge. The most direct way to explain it seemed to be to look at the goals people were trying to attain. From there we looked at how such factors as feedback, participation, commitment, and incentives combined or interacted with goals (see Chapters 6, 7, and 8).

We could, of course, have made our theory “look better” by making predictions regarding only direction rather than level of performance. For example, we could have predicted that people with an intention to go to work are more likely to go there rather than to the ball game. This procedure would certainly have produced very good results (e.g., see Locke, Bryan, & Kendall, 1968, experiments 3, 4 and 5), but it would not have explained differences in performance on the job. (Intention-behavior theories are now well developed in social psychology, as we shall see below.)

COGNITION AND MOTIVATION

At all levels of explanation, cognitive factors play a role in explaining both the choice of action and its degree of success. For example, goals, if chosen by people themselves, are based on such factors as their beliefs about what they can achieve, their recollections of past performance, their beliefs about consequences, and their judgments of what is appropriate to the situation (see Chapter 5). And their degree of success will depend on knowing if they are, in fact, performing in line with the goals (feedback) and their knowledge of appropriate task strategies. At the second level, value choice would depend on the individual's conscious or subconscious philosophy (e.g., What is the good? What values should a person have?) At the third level, cognition is relevant to needs in that how people go about satisfying their needs depends on whether they correctly identify their needs, on their beliefs about what actions will satisfy them, and again on their philosophical premises.

Although cognition and motivation can be separated by abstraction for the purpose of scientific study, in reality they are virtually never separate. All knowledge or beliefs are appraised automatically by the subconscious and can be appraised consciously (by choice) as well (e.g., Is this fact good for me or bad for me or irrelevant?) This is how knowledge is translated into action. On the other side of the same coin, all motivation is based on conscious or subconscious cognitive input (e.g., “I want high-fiber cereal because it is good for my health”). Most action is guided cognitively (“What is the best way to attain this goal?”) as well as motivationally.

Another aspect of cognition, alluded to earlier, must be mentioned here, and that is *volition*. We view volition as involving the choice to raise one's level of cognitive focus from the perceptual level to the conceptual level. To quote Rand (1964, pp. 20–21):

Man's sense organs function automatically; man's brain integrates his sense data into percepts automatically; but the process of integrating percepts into concepts—the process of abstraction and of concept-information—is *not* automatic.

The process of concept-formation does not consist merely of grasping a few

simple abstractions. . . . It is not a passive state of registering random impressions. It is an actively sustained process of identifying one's impressions in conceptual terms, of integrating every event and every observation into a conceptual context, of grasping relationships, differences, similarities in one's perceptual material and of abstracting them into new concepts, of drawing inferences, of making deductions, of reaching conclusions, of asking new questions and discovering new answers and expanding one's knowledge into an ever-growing sum. The faculty that directs this process . . . is: reason. The process is *thinking*.

Reason is the faculty that identifies, and integrates the material provided by man's senses. It is a faculty that man has to exercise *by choice*. Thinking is not an automatic function. In any hour and issue of his life, man is free to think or to evade that effort. . . . The act of focusing one's consciousness is volitional. Man can focus his mind to a full, active, purposefully directed awareness of reality—or he can unfocus it and let himself drift in a semi-conscious daze, merely reacting to any chance stimulus of the immediate moment, at the mercy of his undirected sensory-perceptual mechanism and of any random, associational connections it might happen to make.

In terms of its connection to action, the nature of an individual's thinking, as noted earlier, will affect whether he or she sets specific or vague goals, long-range or short-range goals, consistent or contradictory goals, personally meaningful or meaningless goals, and realistic or unrealistic goals. It will also affect the degree of commitment to goals and the degree to which rational plans are developed for achieving them. Thinking is also pertinent after goals have been formulated. The individual also has to *choose* to take action in accordance with each chosen goal by keeping in focal awareness what is to be achieved, the means needed to achieve it, and the reasons for or benefits of such action.

GOAL SETTING THEORY: A BRIEF HISTORY

As we have noted, the most direct precursor of and direct influence on goal setting theory was the work of T. A. Ryan (1970). But goal setting theory has precursors that go back at least to the turn of the century. Broadly, there are two strands of influence, one connecting the theory to the academic world and the other to the world of business. More specifically, the strands tie into experimental psychology and management theory. These strands of influence are shown in Figure 1–2. This dual heritage, while only coincidental, seems especially appropriate for a theory of work motivation. It is also fortunate, especially in retrospect, that one of the present authors is especially comfortable with laboratory experiments and theorizing while the other author is especially comfortable with field experiments and applying psychological theories to work organizations.

Academic Precursors

The academic strand began with the Wurzburg school in Germany in the early 1900s, directed by O. Kulpe (see Ryan, 1970, for an overview). He and his colleagues were interested in the study of mental processes. They used the term *task* to refer to that which the subject was asked to do. One member of the school, Ach, used the term *determining tendency* to describe the fact, identified by Watt, that a task assigned earlier could affect later action without the individual's being

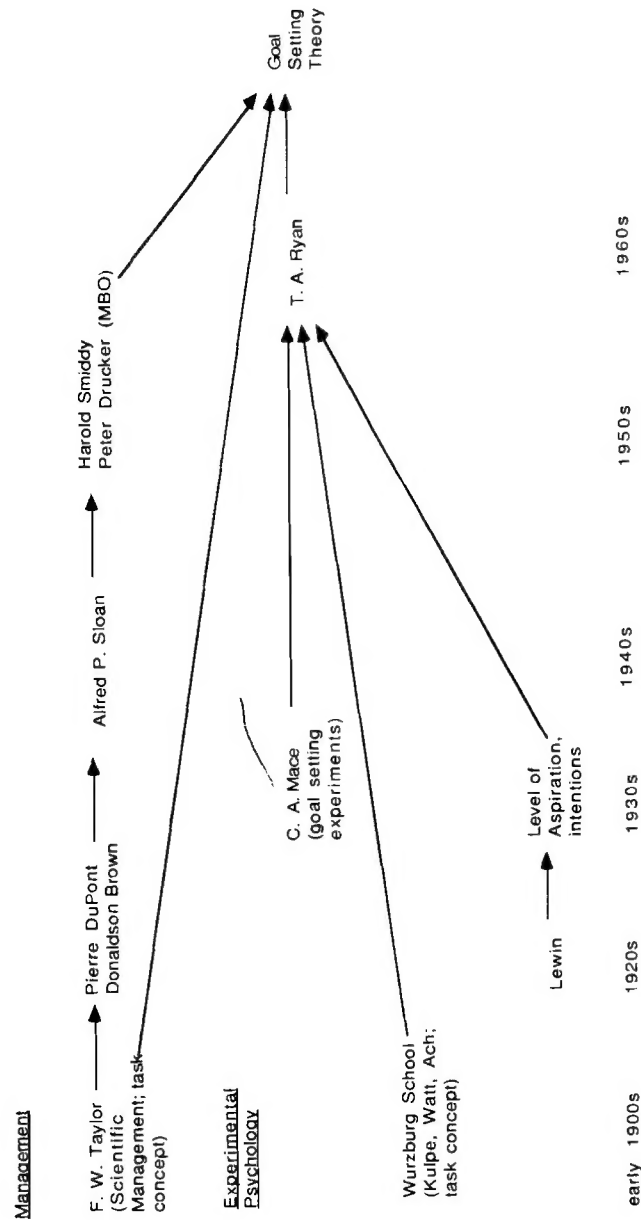


FIGURE 1-2 Historical Precursors of Goal Setting Theory

consciously aware of the task at the time of action. For example, if the task was “to add” when presented with the numbers “4 and 6,” the subjects will say “10” without conscious deliberation. Ryan incorporated the concept of determining tendency into his 1970 model (Figure 2-1, p. 25) to describe the fact that intentions may affect action even when separated in time from the relevant action.

It is doubtful whether Ach was correct in asserting that there was no awareness at all of the intent at the time of action. The individual must have retained the task in memory or else could not have responded appropriately to the numbers 4 and 6. The concept of determining tendency is most logically interpreted as a memory of a previously assigned task held, perhaps, in peripheral awareness.

Another contribution of Ach (and his student Hillgruber) was the formulation of the “difficulty law of motivation,” which stated that volitional effort increased as the difficulty of a task or action increased (Ach, 1935).² This law is clearly the precursor of the “goal difficulty function” presented in Chapter 2.

Lewin, a Gestalt psychologist, criticized some of Ach’s work on the grounds that the effect of the task on performance was even stronger than Ach had acknowledged. Ach had pitted the laws of association (e.g., repetition) in word association experiments against the effect of the task.

Lewin also seems to have introduced the specific term *intention* to the field. His work gave it respectability as a psychological concept. Lewin (1961) argued that an intention was a quasi-need and was associated with a state of tension that was maintained until reduced by the performance or completion of the intended activity or a substitute activity. Lewin’s work led to experiments on the resumption of interrupted tasks (the Ovsiankina effect), on the recall of interrupted tasks (the Zeigarnik effect), to voluminous studies of the effect of intention on learning (intentional vs. incidental learning), to studies of “mental set,” and—most importantly for goal setting theory—to studies of level of aspiration (i.e., goal setting; Ryan, 1970). Unlike goal setting theory, however, level-of-aspiration research focused almost exclusively on the determinants rather than the effects of level of aspiration. (This work is reviewed along with the more recent work on determinants of goals in Chapters 5 and 9.) Lewin’s work, including his later studies of group decision making, influenced the studies of goal setting and participation in factory settings by French and his colleagues at both the Harwood Manufacturing Company and the General Electric Company (e.g., Coch & French, 1948; French, Kay, & Meyer, 1966).

Another academic influence on our work was the series of experiments conducted in England by Mace (1935). It is not clear what had influenced Mace to do this research, but so far as we know, his were the earliest experimental studies ever done of goal setting as an independent variable. He was the first to compare the effects of specific, challenging goals with goals such as “do your best,” and to compare the effects of goals differing in level of difficulty. The results of one of his most successful experiments were reported in Ryan and Smith’s (1954) early industrial psychology textbook, which the present first author was assigned to read as a graduate student. Mace also suggested that task liking and enjoyment

²The authors are indebted to Dr. Uwe Kleinbeck of the University of Wuppertal for making them aware of this law and translating it into English.

were affected by degree of success in relation to performance goals or standards. Finally, he suggested that incentives such as praise, criticism, feedback, supervision, and assigned standards affected performance through their effects on the individual's personal goals. While Mace did not perform any statistical tests on his experimental data, his work was certainly an important impetus to goal setting theory. The first known study to statistically show a relationship between goals and subsequent performance was that by Bayton (1943).

Applied Precursors

The strand of thought stemming from the field of management started with Frederick W. Taylor, the father of Scientific Management. He published his major work, the *Principles of Scientific Management*, in 1911, which was about the same time that the Wurzburger school was flourishing. This book focused on how to select, train, and motivate shop workers. For Taylor, the two key motivational devices were the task and the bonus. Taylor wrote:

Perhaps the most important law belonging to this class, in its relation to scientific management, is the effect which the task idea has upon the efficiency of the workman. This, in fact, has become such an important element of the mechanism of scientific management, that by a great number of people scientific management has come to be known as "task management."

There is absolutely nothing new in the task idea. Each one of us will remember that in his own case this idea was applied with good results in his schoolboy days. No efficient teacher would think of giving a class of students an indefinite lesson to learn. Each day a definite, clear-cut task is set by the teacher before each scholar, stating that he must learn just so much of the subject; and it is only by this means that proper, systematic progress can be made by the students. The average boy would go very slowly if, instead of being given a task, he were told to do as much as he could . . . the average workman will work with the greatest satisfaction, both to himself and to his employer, when he is given each day a definite task which he is to perform in a given time, and which constitutes a proper day's work for a good workman. This furnishes the workman with a clear-cut standard, by which he can throughout the day measure his own progress, and the accomplishment of which affords him the greatest satisfaction. (Taylor, 1967 edition, pp. 120-22)

Under Taylor's system, a large bonus was paid if the worker succeeded in attaining his assigned task. While Taylor's classic book was published not long after many of the Wurzburger school publications, there is no evidence that Taylor had ever heard of them. Thus his use of the same key concept (task), while remarkable, seems coincidental.

Taylor's ideas, through a circuitous route, played a role in the emergence of Management by Objectives, or MBO (Greenwood, 1981; Locke, 1982a; Wren, 1987). MBO is a system of motivating and integrating the efforts of business managers by setting goals for the organization as a whole and then cascading these objectives down through each management level, so that goal attainment at each level helps attain goals at the next-highest level and ultimately the goals of the whole firm (Carroll & Tosi, 1973). Greenwood (1981) and Wren (1987) outlined the history of MBO as follows: Pierre DuPont adapted some of Taylor's ideas on accounting and cost control (another aspect of his theory of

Scientific Management) at the DuPont Power Company. For example, ROI (return on investment) was developed as a measure of organizational performance. One of DuPont's subordinates, Donaldson Brown, further adapted this concept so that it could be used to evaluate the performance of various departments or divisions within the DuPont Company. When Pierre DuPont later became head of General Motors, he took Brown with him and hired Alfred P. Sloan, who eventually succeeded him as president of GM. Sloan institutionalized the ROI concept as a means of maintaining some centralized control when he decentralized GM. It appears that Sloan was the first executive to actually use MBO to motivate and evaluate managers, although he did not call it by that name. Sloan claimed that "the guiding principle was to make our standard [goals] difficult to achieve, but possible to attain, which I believe is the most effective way of capitalizing on the initiative, resourcefulness, and capabilities of operating personnel" (cited in Odiorne, 1978, p. 15). This claim turned out to foreshadow, in part, the empirical findings of goal setting research that emerged in our own work.

The name and formal concept of MBO came some years later (Greenwood, 1981). Harold Smiddy had been a partner in the consulting firm of Booz, Allen and Hamilton and while there had learned of the concept of the "manager's letter." Each manager was required to submit to his superior each month a list of the goals he planned to achieve and the means he would use to achieve them. In 1948 Smiddy joined the General Electric Company and introduced the idea of the manager's letter there. His outside consultant, Peter Drucker (later to become the famous writer on management), convinced him to develop it into a management philosophy that Drucker named Management by Objectives (Drucker, 1954). Drucker apparently knew about Sloan's prior use of MBO at GM (Greenwood, 1981; Odiorne, 1978), even though Sloan did not use the term or develop MBO into a philosophy of management. MBO can be viewed as goal setting applied to the macro or organizational level.

GOAL SETTING IN CONTEMPORARY WORK MOTIVATION THEORY

Aside from being a motivation theory in its own right, the concept of goal setting has been incorporated sooner or later, explicitly or implicitly, into a number of work motivation theories. Consider, for example, Human Relations theory, which stresses an approach to motivating employees based on cohesive work groups, considerate supervision, two-way communication, and employee participation in decision making. Especially in its early years, Human Relations theories denigrated top-down styles of leadership, as well as incentives as a means of motivating employees to accept goals (e.g., Whyte, 1955).

Eventually, Human Relations theory, possibly as a result, in part, of Lewin's influence, incorporated both goal setting and money into its body of techniques, even if not into its theory, by combining them with participation. In the famous Harwood studies (Marrow, Bowers, & Seashore, 1967), goal setting in the form of work standards, plus incentives and participation, were all used.

Today Human Relations advocates more openly concede the importance

of goals and monetary incentives. A well-known book on the Scanlon Plan, a participative, Human Relations-oriented plan that entails the use of economic rewards to motivate employees, asserts that "... standards are not inconsistent with a Scanlon Plan if they are used as a tool for meeting the cost and not for restrictive control. Everyone needs a benchmark and a set of criteria to evaluate himself" (Frost, Wakeley, & Ruh, 1974, p. 121).

Similarly, Likert, while emphasizing the importance of managers acting supportively toward subordinates, acknowledges that "superiors in System 4 organizations ... should have high performance aspirations, but this is not enough. Every member should have high performance aspirations as well" (Likert, 1967, p. 51). This emphasis is taken seriously in practice, as demonstrated in a report of the application of System 4 at GM's Lakewood assembly plant (Dowling, 1975). Management set explicit goals for such areas as production, scrap, grievances, and labor costs and then had employees set their own goals on the basis of higher-management input and as well as their own knowledge of the operation. With respect to feedback concerning goal accomplishment, "employees at Lakewood were given more information about how they were doing and were given it more frequently than ever before" (p. 36).

Organizational development (OD), an outgrowth of the Human Relations movement, considers MBO to be an OD technique (French & Bell, 1984) because, in theory, goals are to be set participatively when MBO is used. Another OD technique, survey feedback, typically involves goal setting in practice in that its aim is to identify specific problem areas in the organization by means of attitude surveys and then take specific steps to eliminate those problems.

Goal setting has also been incorporated into another major work motivation theory: VIE, or valence-instrumentality-expectancy theory. The major premise of VIE theory is that in making choices, an individual mentally sums the expected pleasures to be derived from each possible alternative, subtracts the sum of the expected pains, and chooses the alternative with the highest positive net value. VIE theory did not recognize the importance of goal setting in its original, organizational psychology version (Vroom, 1964), probably due to VIE theory's hedonistic emphasis. Its major focus was on the way in which people's beliefs and feelings allegedly lead them to choose a particular course of action.

The hedonistic and other assumptions of VIE theory have been criticized in detail elsewhere (Locke, 1975). Suffice it to say that some revised models have put less stress on hedonism and, more pertinent to the present discussion, have expanded VIE theory to include an explicit goal setting stage (Campbell, Dunning, Lawler, & Weick, 1970). One possible way to integrate some of the VIE constructs with goal setting is to view values and expectancies as factors that influence the goals an individual chooses or accepts while viewing goals themselves as the more direct determinants of action (Hollenbeck & Klein, 1987; see also Chapter 5 in this volume). As we shall see in Chapter 3, however, expectancies also influence performance directly.

Two other work motivation theories have never shown any explicit theoretical recognition of the importance of goal setting to employee motivation. Both schools, however, have recognized its importance implicitly, since when these theories are put into practice, goal setting is virtually always involved.

The Cognitive Growth school, associated mainly with Herzberg and to an extent Maslow (1954), promulgated in the early 1960s, emphasized people's psychological or growth needs (e.g., knowing more, integrating one's knowledge, being creative, being effective in ambiguity, developing a genuine sense of self-worth, etc.). It was asserted that these needs could best be satisfied through one's work. According to Herzberg, jobs that did not allow for such growth needed to be enriched by providing the employee with increased responsibility and autonomy.

Herzberg never mentioned goal setting as an element of job enrichment. In fact, the idea was explicitly rejected by him (Herzberg, 1975, pp. 98-99) and his followers (Ford, 1969, p. 28). This may have been due to its association with Scientific Management, whose emphasis on extreme division of labor Herzberg (1966) disparaged. In practice, goal setting was unwittingly incorporated into the procedure of job enrichment under the name of feedback. The explicit purpose of feedback in job enrichment programs is to increase the employee's feeling of achievement and to provide him or her with a sense of personal responsibility for the work. Two obvious questions that arise in this context are, How does an employee know when he or she has achieved something? and How does that employee know when he or she has adequately or successfully fulfilled his or her responsibility? The answer must be, When the feedback is compared, by management or by the employee, with some standard of appropriate performance, i.e., when the feedback is appraised in terms of some goal. Thus whenever management gives its employees feedback, one can be confident that some performance standard is involved, implicitly if not explicitly.

Numerous studies have shown that feedback in itself does not have the power to motivate performance directly (Annett, 1969; Latham, Mitchell, & Dossett, 1978; Locke, Cartledge, & Koepfel, 1968). It has been argued that feedback motivates action only indirectly, through its relationship to goal setting. For example, if the feedback shows that one's prior performance was below the desired standard, one can increase one's subsequent effort, or change one's tactics, in order to meet the standard in the future (for details, see Chapter 8 of this volume).

In practice, job enrichment has involved so many different types of job changes, often within the same study, that isolating specific effects of the different elements is virtually impossible (Locke, 1975). Noticeable progress in this direction was made in a simulated field study by Umstot, Bell, and Mitchell (1976). They found that job enrichment procedures from which goal setting elements had been specifically deleted led to increased job satisfaction but failed to improve productivity. In contrast, assigning the employees explicit, challenging goals accompanied by feedback led to higher productivity even in the absence of job enrichment. When goal setting and job enrichment were combined, both productivity and satisfaction improved. In some studies alleged to involve job enrichment, employee goal setting has been advocated explicitly (Walters, 1975).

It is probable, therefore, that increases in the quantity or quality of productivity found in job enrichment studies (Ford, 1969; Lawler, 1970) are at least partially attributable to an implicit goal setting element. Locke, Sirota, and Wolfson (1976), in their field study of job enrichment, attributed some of the

performance improvement found to goals and feedback. They also suggested that productivity might increase under such programs as a result of the elimination of unnecessary tasks or of a more efficient use of labor. This could occur when employees are allowed to work where they are needed rather than where they are arbitrarily assigned by a supervisor (see also Locke, Ferrell, McCaleb, Shaw, & Denny, 1980).

If the incorporation of goal setting has been subtle among advocates of the Cognitive Growth school, it is much more obvious among advocates of a more recent school, Organizational Behavior Modification (OBM), which became popular in the 1970s as a method of motivating employees. The OBM technique of goal smuggling consists of openly advocating the use of "performance standards," a term used as a synonym for goal, accompanied by feedback and possibly praise and/or money, but describing these procedures at the theoretical level in behavioristic language (Locke, 1977). Thus performance standards or goals become "controlling stimuli" or "discriminative stimuli," and feedback, praise, and money become "reinforcers" or "conditioned reinforcers" (Fellner & Sulzer-Azaroff, 1984; Luthans & Krietner, 1975).

These labels add nothing to our understanding of how or why goal setting works. Worse, they are misleading and, in many cases, incorrect. Consider first the claim that the goal is a stimulus or discriminative stimulus. Even if the stimulus referred to here is an assigned goal, such a stimulus only affects action if the individual commits himself or herself to that goal. *Thus the efficient cause of goal-directed action is internal, not external.* A goal is an idea. Furthermore, some goals are set by the individual without any external prod (Brief & Hollenbeck, 1985).

Bandura (1986) has shown that even the behaviorist emphasis on consequences is misleading at best and mistaken at worst. Reinforcement does not affect behavior unless individuals believe that they can make the requisite response. Furthermore, making such a response presupposes that the individual knows what response to make (Levine, 1971) and wants the rewards that it brings (Dulany, 1968). Finally, goals can affect behavior in a single trial *before* any behavior has been reinforced (Locke, 1982b).

Similarly, consider the claim that feedback is a reinforcer for goal-directed activity. First, feedback is simply information. How one responds to information depends on if and how it is understood and appraised (Arnold, 1960). Feedback may lead to a negative appraisal, an appraisal of indifference, or a positive appraisal depending on the individual's values and the circumstances. In turn such appraisals can lead to many different responses, including no change in effort, greater effort, reduced effort, modified strategies, change of tasks, leaving the situation, aggression, or various defensive maneuvers. Calling feedback a reinforcer simply obscures the decision process that follows it and discourages the search for the actual mechanisms by which it does affect subsequent action (Locke, 1977, 1980a, 1980c). In Chapter 8 we present a detailed analysis of studies showing the relationship between goals and feedback.

Behavior modification advocates argue that feedback effects vary with the circumstances due to differences in individuals' "reinforcement history." Such a claim, like the concept of instinct, can "explain" everything and therefore nothing.

Other OBM advocates have claimed that since goal setting theory refers to internal mental states, it is untestable and therefore unscientific unless rephrased in terms of "objective," that is, external concepts. Since numerous studies show that goals and goal commitment can be measured (see the following chapters) and can be related to actual performance, their claim is invalid.

As noted earlier, all the sciences, including physics, chemistry, and biology, depend on inferences that go beyond what can be observed directly. Trying to pretend otherwise simply leads to the distortion of scientific concepts (Locke, 1969b, 1972); this is especially true in psychology where all the key concepts refer to mental states. Mental states and processes, as noted earlier, can be directly observed in oneself. They need only be inferred in other people. The emergence of cognitive psychology as the dominant paradigm in the field over the past ten to fifteen years, and the simultaneous decline of the influence of behaviorism in all subfields of psychology, testify to an overwhelming consensus, supported by introspection, logic, and empirical findings (e.g., see Bandura, 1986) in favor of the use of such inference.

As the influence of behaviorism has declined, a neo-behaviorist theory is emerging to take its place. It is called control theory and can be viewed as a combination or integration of behaviorism, machine-computer theory (cybernetics), goal setting theory, and, by implication, drive-reduction theory. It is derived most directly from Miller, Galanter, and Pribram's TOTE model (1960). The major concepts of control theory have been presented by Campion and Lord (1982), Carver and Scheier (1982), Hyland (1988), Lord and Hanges (1987), Powers (1973), and others. In brief, the theory asserts that there is *input* (a stimulus), which is detected by a *sensor*. This is fed into a *comparator*, which compares the input with a *reference standard*. If there is a deviation (also called a "disturbance"), a *signal* is sent to an *effector*, which generates modified *output* (a response). This output becomes the input for the next cycle. In goal theory language, the input is feedback from previous performance, the reference signal is the goal, the comparator is the individual's conscious judgment, and the effector or response is his or her subsequent action which works to reduce the discrepancy between goal and performance.

While control theory acknowledges the importance of goal setting, there are serious, if not irredeemable, flaws in the model. First, observe that the major "motive" for action under control theory is to remove disturbances or discrepancies between the goal and the input (feedback). The natural state of the organism is seen to be one of motionlessness or rest. This is true of machines, but not of living organisms which are naturally active. It is, in effect, a mechanistic version of long discredited drive-reduction theory (Cofer & Appley, 1967). Nuttin (1984) has observed that in this aspect, control theory fundamentally misstates the actual source of motivation: "The behavioral process . . . does not begin with a 'test' of the discrepancy between the standard and the actual states of affairs. Instead, it begins with a preliminary and fundamental operation, namely the construction of the standard itself, which, as a goal, is at the origin of the action and directs its further course" (p. 145). Similarly, Bandura (in press) noted that *goal setting is first and foremost a discrepancy creating process*. Control theory begins in the middle rather than at the beginning of the motivational sequence. To quote Bandura (in press):

Human self-motivation relies on both *discrepancy production* and *discrepancy reduction*. It requires *feedforward* control as well as *feedback* control. People initially motivate themselves through feedforward control by setting themselves valued challenging standards that create a state of disequilibrium and then mobilizing their effort on the basis of anticipatory estimation of what it would take to reach them. After people attain the standard they have been pursuing, they generally set a higher standard for themselves. The adoption of further challenges creates new motivating discrepancies to be mastered. Similarly, surpassing a standard is more likely to raise aspiration than to lower subsequent performance to conform to the surpassed standard. Self-motivation thus involves a dual cyclic process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction. (p. 23 of preprint)

Figure 1–3 illustrates how little of the motivational process control theory, in its “core” version, incorporates.

The above is important because if discrepancy reduction is the major motive, as implied by control theory, then the most logical thing for an individual to do would simply be to adapt his or her goal to the input. This would guarantee that there would be no disturbance or discrepancy. Machines, of course, cannot do this because the standard has been fixed by people at a certain level (as in setting a thermostat). But people can and do change standards that diverge from present performance. If the individual's major motive were to remove disturbances, people would never do this. Control theorists argue that lower-level goals are actually caused by goals at a higher level in the individual's goal hierarchy (Carver & Scheier, 1982). But this only pushes the problem back a step. Why should people set higher-level goals if they only want to reduce tension? But in reality, people do set goals and then act to attain them; they do not focus primarily on eliminating disturbances. Removal of discrepancies and any associated tension is a *correlate* of goal-directed action, not its cause. The causal sequence begins with setting the goal, not with removing deviations from it.

At a fundamental level, discrepancy reduction theories such as control theory are inadequate because if people consistently acted in accordance with them by trying to eliminate all disturbances, they would all commit suicide—because it would be the only way to totally eliminate tension. If people chose instead to stay alive but set no goals, they would soon die anyway. By the time they were forced into action by desperate, unremitting hunger pangs, it would be too late to grow and process the food they would need to survive.

In their major work, Carver and Scheier (1981) denied that discrepancy reduction is motivated by a desire to reduce a drive or state of tension. But their own explanation as to why people act to reduce discrepancies is quite puzzling. “The shift [of action in the direction of the goal or standard] is a natural consequence of the engagement of a discrepancy-reducing feedback loop” (p. 145). This statement, of course, explains nothing. Why is discrepancy reduction a “natural consequence”? According to goal theory, *both* discrepancy creation *and* discrepancy reduction occur for the same reason: because people need and desire to attain goals. Such actions are required for their survival, happiness, and well-being.

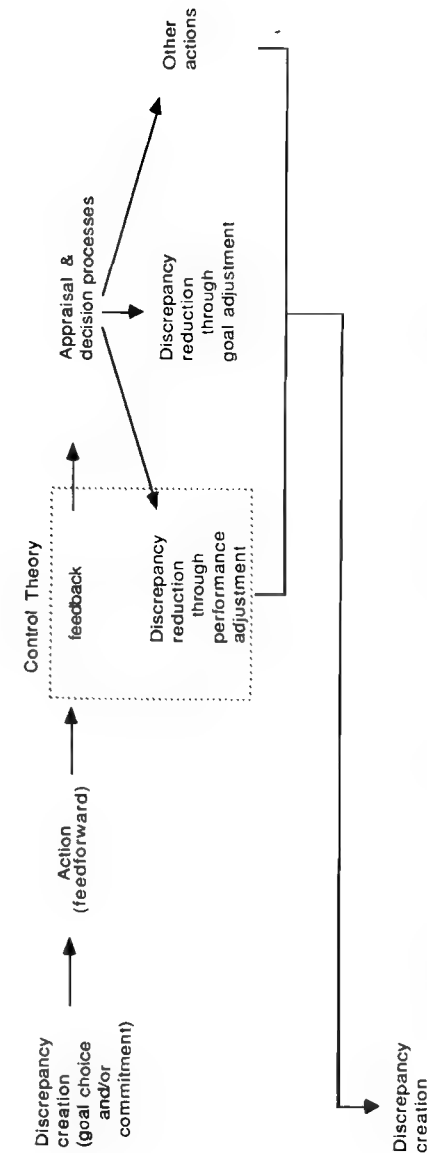


FIGURE 1–3 Aspects of the Motivation Process Incorporated into the “Core Version” of Control Theory

A second problem with control theory is its very use of a machine as a metaphor. The problem with such a metaphor is that it cannot be taken too literally or it becomes highly misleading (e.g., see Sandelands, Glynn, & Larson, 1988). For example, people do not operate within the deterministic, closed-loop system that control theory suggests. In response to negative feedback, for example, people can try harder or less hard. They can focus on the cause and perhaps change their strategy. They can also lower the goal to match their performance; in some cases they may raise their goal. Furthermore, they can reinterpret the discrepancy as unimportant and ignore it or can even totally deny it. They can also question the accuracy of the feedback. They can go outside the system (by leaving the situation). They can attack the person they hold responsible for the discrepancy. They can become paralyzed by self-doubt and fear and do nothing. They can drink liquor to blot out the pain. In short, they can do any number of things other than respond in machinelike fashion. Furthermore, people can feel varying degrees of satisfaction and dissatisfaction, develop varying degrees of commitment to goals, and assess their confidence in being able to reach them (Bandura, 1986). These emotions, decisions, and estimates affect what new goals they will set and how they will respond to feedback indicative of deviations from the goal (Bandura, 1988). Control theory, insofar as it stresses a mechanistic model, simply has no place for these alternatives, which basically means that it has no place for consciousness. Insofar as this is the case, the theory must fail for the same reason behaviorism failed. Without studying and measuring psychological processes, one cannot explain human action.

One might ask why control theory could not be expanded so as to accommodate the ideas and processes noted above. Attempts have been made to do this, but when it is done, the machine language may be still retained. Hyland (1988), for example, described the effects of goal importance or commitment in terms of "error sensitivity," which is represented diagrammatically by a box called an "amplifier." Expectations and memory are represented as "symbolic control loops." Decision making is done not by a person but by a "selector." What is the benefit of translating relatively clear and well-accepted concepts that apply to human beings into computer language that is virtually incomprehensible when used to describe human cognition? The greater the number of concepts referring to states or actions of consciousness that are relabeled in terms of machine language, the more implausible and incomprehensible the whole enterprise becomes. Nuttin (1984, p. 148) wrote on this: "When behavioral phenomena are translated into cybernetic and computer language, their motivational aspect is lost in the process. This occurs because motivation is foreign to all machines."

On the other hand, if additional concepts are brought into control theory and not all relabeled in machine language (e.g., Lord & Hanges, 1987), then control theory loses its distinctive character as a machine metaphor and becomes superfluous—that is, a conglomeration of ideas borrowed from other theories. And if control theory does not make the needed changes and expansions, it is inadequate to account for human action. Control theory, therefore, seems to be caught in a triple bind from which there is no escape. If it stays strictly mechanistic, it does not work. If it uses mechanistic language to relabel concepts referring to consciousness, it is incomprehensible. And if it uses nonmechanistic concepts, it is unoriginal. It has been argued that control theory is useful because it provides a

general model into which numerous other theories can be integrated (Hyland, 1988). However, a general model that is inadequate in itself cannot successfully provide an account of the phenomena of other theories.

In their book, Carver and Scheier (1981) examined the effect of individual differences in degree of internal focus versus external focus in action. While this presentation is more plausible than the mechanistic versions of control theory, most of it actually has little to do with control theory as it relates to goal setting. For example, they discuss how expectancies and self-focus affect performance but do not examine the goal-expectancy literature (as we do in Chapter 3). And some of their conclusions (such as that self-efficacy does not affect performance directly) contradict actual research findings. Only one actual goal setting study (not in Carver and Scheier's book) has used the self-focus measure. Hollenbeck and Williams (1987) found that self-focus only affected performance as part of a triple interaction in which ability was not controlled. Thus it remains to be seen how useful the measure is, either as a moderator or as a mediator of goal setting effectiveness.

There is also a conceptual problem with the prediction that the relation between goals and performance will be higher among those high in self-focus than those low in self-focus. Goal attainment requires, over and above any internal focus, an *external* focus; most goals refer to something one wants to achieve in the external world. Thus the individual must monitor external feedback that shows progress in relation to the goal in order to make progress toward it. Individuals might focus internally as well (a) to remind themselves of what the goal is—though this can also be done externally, as on a feedback chart; (b) to retain commitment by reminding themselves of why the goal is important; and (c) to assess self-efficacy. Furthermore, depending on what is focused on, (e.g., self-encouraging thoughts or self-doubt), an internal focus could either raise or lower goal-relevant effort. In sum, the relation between where one is focused and goal-relevant performance seems intuitively far more complex than is recognized by the cognitive version of control theory.

Finally, some have argued that control theory is original because it deals with the issue of goal change (e.g., Campion & Lord, 1982). However, goal change was actually studied first by level-of-aspiration researchers in the 1930s and 1940s, so control theory can make no claim of originality here. Nor can a mechanistic model hope to deal adequately with issues involving human choice as noted above.

In sum, the present authors do not see what control theory has added to our understanding of the process of goal setting; all it has done is to restate a very limited aspect of goal theory in another language, just as was done by behavior mod advocates. Worse, control theory, in its purest form, actually obscures understanding by ignoring or inappropriately relabeling crucial psychological processes that are involved in goal-directed action (these will be discussed in subsequent chapters).

In contrast to behavior modification and control theory, Bandura's (1986) social-cognitive theory is highly compatible with goal setting theory. It not only includes goal setting as part of its content but adds two important dimensions to goal theory. The first is role modeling, which Bandura has shown to be an important social influence on action. Studies have shown that modeling has significant effects on goal choice and goal commitment (see Chapters 5 and 6).

The second added dimension is self-efficacy. Though related in meaning to expectancy (from valence-instrumentality-expectancy theory), self-efficacy has a wider meaning (see Chapter 3) and is measured somewhat differently from the way expectancy is usually measured. Self-efficacy has been found to play multiple roles in goal setting theory. It affects goal choice, goal commitment, and response to feedback, and it also has a direct effect on performance. Social-cognitive theory is also highly compatible with the metatheoretical approach of goal setting theory; both stress the importance of cognitive self-regulation.

Some mention should be made of two related theories having some similarity to goal setting literature in the area of social psychology. These are the theories of "reasoned action" and of "planned behavior" put forth by Ajzen (1987), Ajzen and Fishbein (1980), and Fishbein and Ajzen (1975). These models are mainly concerned with predicting behaviors such as purchasing coffee or using birth-control pills from measured intentions to take those actions. Intentions in turn are predicted by attitudes toward the action and subjective norms. Ajzen (1987) added perceived behavioral control to his model.

There are clearly strong parallels between such theories and goal setting theory. As we noted earlier, intentions are similar in meaning to goals. Attitudes, in the form of valences, and norms are integrated into goal setting theory in several places (see Chapters 5 and 6). And perceived control is similar in meaning to self-efficacy and plays a similar role in both theories. Reviews of the literature on these models show them to have substantial validity (Ajzen, 1987; Sheppard, Hartwick, & Warshaw, 1988).

The term *goal* is distinguished from that of intention by Sheppard, Hartwick, and Warshaw (1988) by using *goal* to refer to the desire to attain outcomes that require overcoming obstacles (such as getting enough money to implement the desire to buy a car). The term *intention* is used if there are no substantial obstacles, such as in the case of the intention to buy coffee. Our use of the term *goal*, however, is different. We use it to refer to desired outcomes in terms of level of performance to be attained on a task rather than to the desire to take a specific action. The two types of theories are therefore complementary in that they pertain to different domains but use similar approaches. Goal setting theory, as we shall see, is also more elaborated and is based on a more extensive research base than the intention theories.

Another modern movement focused on the understanding of volitional and goal-directed action is centered in West Germany; this interest is perhaps not a coincidence, since, as already noted, the academic roots of goal setting trace back to Wurzburg (Figure 1-2). Researchers such as U. Kleinbeck, H. Heckhausen, J. Kuhl, and P. Gollwitzer have all written about and done research on goal-directed activity (e.g., see Halisch & Kuhl, 1987). W. Meyer (1987) has studied perceived ability, which is similar in meaning to self-efficacy. C. Antoni and J. Beckman (1987) have specifically looked at the individual difference variables of attentional focus and persistence as a moderator of goal setting effects. Kleinbeck (1986) has studied the effects of the goals when individuals are performing two tasks at once. Gollwitzer, Heckhausen, and Ratajczak (1987) looked at the effects of what we in Chapter 6 call goal intensity on commitment. Frese and Sabini (1985) call this West German movement, along with its American counterparts, *action theory*, which, they argue, "begins with a conception of human behavior: that it is directed

toward the accomplishment of goals, that it is directed by plans, that those plans are hierarchically arranged, and that feedback from the environment articulates with plans in the guidance of action" (p. xxiii). Action theory, in terms of its basic assumptions, is clearly compatible with goal setting theory.

Finally, in Belgium, Nuttin (1984) published a book entitled *Motivation, Planning and Action*. In addition to his incisive critiques (cited earlier) of tension-reduction and cybernetic (control) theories, he made many astute observations about the relationship between goals and needs, goals and feedback, and goals and planning, which are quite compatible with goal theory (see also Nuttin, 1985).

DIMENSIONS OF GOALS

Goals, like other mental processes (Rand, 1969), have two main attributes: content and intensity. Goal content refers to the object or result being sought—e.g., buying a house, getting a raise, winning a tennis match, getting a score of 26 or better on a task. Usually the content will refer to some aspect of the external world, although it is also possible for people to have psychological goals such as happiness, higher self-esteem or less anxiety and self-doubt. The content of different goals may differ qualitatively. An individual may have a career goal, a job goal, a financial goal, or a goal in sports or hobbies or in his or her social life. Goal content may vary quantitatively. The individual may have few or many goals, short-term or long-term goals (close or distant deadlines), or easy or difficult goals. Goals may also vary in degree of specificity or clarity, the clearest or most specific goals usually being quantitative (e.g., try for a 5% productivity improvement) and the least clear being more verbal (e.g., do the best you can, do a good job). An individual's goals may also be consistent or conflicting.

Most research on goal content to date has focused on the effects, alone and in various combinations, of degree of goal specificity and degree of goal difficulty. Multiple goals and goals differing in time span have been studied to some degree. Goal setting has been studied with scores of different tasks and in many different settings (see Chapter 2).

It is worth making the distinction here between goal difficulty and task difficulty, since there has been some confusion in the literature over the meanings of these two terms (see Locke, Shaw, Saari, & Latham, 1981). A *task* is a piece of work to be accomplished. A *difficult task* is one that is hard to do. A task can be hard because it is complex, that is, requires a high level of skill and knowledge. For example, writing a book on physics is a harder task than writing a thank-you note. A task can also be hard because it requires a great deal of effort: digging the foundation for a swimming pool takes more effort than digging a hole in which to plant a flower seed. The only goal setting study to have explicitly separated goal and task difficulty is that by Campbell and Ilgen (1976). Using chess problems, they found that both goal and task difficulty affected performance. Harder goals led to better performance than easier goals, and initial assignment of more-difficult problems led to better subsequent performance than initial assignment of less-difficult problems. The authors attributed the latter effect to increased task knowledge fostered by working on the more-difficult problems.

Since a goal is the object or aim of an action, it is possible for the

completion of a task to be a goal. In most goal setting studies, however, the term *goal* refers to attaining a specific standard of proficiency on a given task, usually within a specified time limit. For example, two individuals are given the same task (e.g., simple addition), but one is asked to complete a large number of problems within thirty minutes and the other, a small number. The harder goal would be achieved by expending greater effort and attention than would be expended to achieve the easy goal. Harder goals, like harder tasks, can also require more knowledge and skill than easier goals (e.g., winning a chess tournament vs. coming in next to last). Harder tasks usually lead to more effort but lower performance scores than easier tasks. For example, the average person's score would be lower on a calculus test than on a test of simple addition (though as Campbell and Ilgen found, working on a harder task may lead to better subsequent performance than working on an easier task when all subjects are subsequently given tasks of equal difficulty to work on). To summarize the distinction between the terms, *goal difficulty* specifies a certain level of task proficiency measured against a standard, whereas *task difficulty* refers simply to the nature of the work to be accomplished.

The second dimension of goals, *intensity*, refers to such factors as the scope and integration of the goal setting process, the effort required to form the goals, the place of the goal in the individual's goal hierarchy, the degree to which the individual is committed to the goal, and the importance of the goal. Most research on goal intensity has focused on the determinants and effects of goal commitment, although there have been a few studies on the intensity of the goal setting process.

It should be noted that goal content and intensity are not always easy to separate. For example, a more-intense psychological process could be involved in setting clear, specific goals than vague goals in a situation where a great deal of information had to be analyzed and integrated before the goals could be clearly formulated. In such a case, clearer goals would be more intense than vague goals. In other situations, however, there might be no difference, as in a laboratory experiment in which different people were assigned specific and general goals. The different goals might lead to different degrees of effort, even though they would not necessarily differ in intensity.

In the next chapter, we present the core findings of goal setting theory.

CORE FINDINGS

The core premise of goal setting theory is that goals are immediate, though not sole, regulators of human action. The category of actions that the theory is concerned with is performance on work tasks. In this chapter we present and summarize the core findings and degree of generality of goal setting theory. There are many additional aspects to goal theory, including goal choice and a number of specified mechanisms and moderators of goal setting effects. These will be examined in later chapters. If goals are immediate regulators of task performance, it follows that there should be a substantial and consistent relationship between goal content and task performance.

The main focus of the chapter will be on the effects of goal difficulty on performance and on the effects of specific, difficult goals vs. do best goals. We will also report findings regarding the effects of nonquantitative goals, the effects of goals "in general," the effects of goal specificity on performance variance, the effects of multiple goals and goal prioritization, the effects of goals on intrinsic motivation, and the effects of proximal vs. distal goals.

GOAL DIFFICULTY AND PERFORMANCE

Goal setting theory asserts that there is a linear relationship between degree of goal difficulty and performance. This relationship, termed the *goal difficulty function*, is shown in Figure 2-1. Empirical findings demonstrating this function can be found in Locke (1966d), Locke (1967c), Locke (1982b), Locke & Bryan (1968b), Locke, Mento, & Katcher (1978), Locke, Frederick, Buckner, & Bobko (1984), Locke, Chah, Harrison, & Lustgarten (1989), and in other sources. Locke (1968b) derived an empirical function based on the results of twelve separate studies (including some of those listed above). In all cases the functions are linear except when subjects reach the limits of their ability at high goal difficulty levels; in such cases the function levels off (e.g., see Locke 1982b).

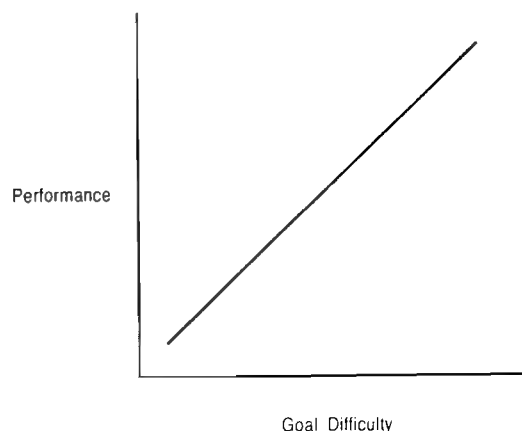


FIGURE 2-1 The Goal Difficulty Function

There have been four separate meta-analyses of the goal difficulty–performance relationship, although the studies included in them are overlapping. The results of these meta-analyses are shown in Table 2–1. All of these studies involved designs in which goal difficulty varied quantitatively. The number of studies included in these analyses ranged from 12 to 72, and the number of subjects from 1,770 to 7,548. The mean effect size (d) of the Tubbs (1986) study is larger than the d 's in the other meta-analyses, especially those of Mento, Steel, & Karren (1987) and Wood, Mento, and Locke (1987). This is because in the latter analyses, studies using within-subjects design were deleted. Mento et al. (1987) believed that within-S studies would bias the results, although such an assertion is arguable. Within-S studies, for example, probably control individual differences better than between-S studies. Effect size also depends, of course, on the total range of goal difficulty used in the study in question. In Locke (1967c), for example, the performance of the subjects with the hardest goals was over 250% higher than the performance of subjects with the easiest goals ($d = 12.5$). In most studies the range of goal levels was not nearly this great; furthermore, subjects with easy goals, unless told to stop when they reach their goals, often set new goals when they reach their assigned goals, thus making the goal difficulty manipulation less than perfect. This issue is addressed further in Chapters 5 and 6. Within the range of the typical goal setting study, and ignoring the possibility that easy goal subjects set new goals, the mean effect sizes in Table 2–1 ranged from .52 to .82. In percentage terms these represent effects on performance of 10.4% to 16.4%.¹

Enumerative reviews of the literature have been conducted by Latham and Yukl (1975a), Locke (1968b), Locke, Shaw, Saari, and Latham (1981), and Steers and Porter (1974). Locke et al. (1981) found that 48 out of 57, or 84%, of the studies of goal difficulty showed significant or contingently significant effects. The total number of studies of goal difficulty is now more than three times the number reviewed by Locke et al. (1981) and well more than twice the number

¹We are indebted to Dr. Frank Schmidt for explaining how to derive percentages from d -scores.

Table 2–1 Results of Meta-Analyses of Goal Difficulty Effects on Performance

STUDY	NO. OF STUDIES	N	EFFECT SIZE (d)	COMMENTS
Chidester & Grigsby (1984)	12	1,770	.52	Remaining nine studies were correlational
Mento, Steel, & Karren (1987)	70	7,407	.55	Excluded within-S designs
Tubbs (1986)	56	4,732	.82	Included within-S designs
→ Wood, Mento, & Locke (1987)	72	7,548	.58	Corrected d ; same studies as Mento et al., plus two

reviewed in the most recent meta-analysis by Wood, Mento, & Locke (1987). There are 175 studies showing positive (140 studies) or contingently positive (35 studies, i.e., positive for one subgroup or condition) associations between goal difficulty and performance, and 17 that show no effect or effects in the opposite direction. This represents a success rate (including contingent successes) of 91%. The positive and contingently positive studies are listed in Appendix A. An analysis of the contingently positive studies and the failures will be made below.

The explanation for the goal difficulty effect is that hard goals lead to greater effort and persistence than easy goals, assuming the goals are accepted. Related to this is the fact that hard goals make self-satisfaction contingent on a higher level of performance than easy goals. (These issues are addressed at greater length in the following two chapters.)

SPECIFIC, DIFFICULT GOALS VS. DO BEST OR NO ASSIGNED GOALS

A second core aspect of goal theory is that goals that are specific and difficult lead to a higher level of performance than vague, nonquantitative goals such as “do your best,” “work at a moderate pace,” or no assigned goals. The comparison of the effects of specific, hard goals and do your best goals represents the most nonobvious comparison, since “do your best” goals, despite being nonquantitative, imply a high level of motivation. When no goals are assigned, this often represents an implicit do best condition, especially in a laboratory setting, since most people try to do well in such situations (Orne, 1962). If subjects literally had no goal at all, they would do nothing and the comparison with other goal conditions would be of little or no theoretical interest. Similarly, it would be relatively trivial to compare the effects of specific, difficult goals with nonquantitative goals implying a moderate to low level of motivation such as “work at a moderate pace” or “work at a slow pace,” although such comparisons have been made on occasion (Locke, Mento, & Katcher, 1978). Thus virtually all the studies reported in this section compare specific, hard with do best goals or implicit do best goals (no assigned goals).

The results of five meta-analyses of studies that made these comparisons are shown in Table 2–2. Four of the meta-analyses are from the same articles that

Table 2-2 Results of Meta-Analyses of Specific, Difficult Goals vs. Do Best or No Goal Effects on Performance

STUDY	NO. OF STUDIES	N	EFFECT SIZE (<i>d</i>)	COMMENTS
Chidester & Grigsby (1984)	17	2,400	.51	Remaining five studies were correlational
Hunter & Schmidt (1983)	17	1,278	.80	Based on Locke et al., 1980, mean %; N is an underestimate, since some studies used groups and did not report N for individuals
Mento, Steel, & Karren (1987)	49	5,844	.42	Excluded within-S designs
Tubbs (1986)	48	4,960	.50	Included within-S designs
Wood, Mento, & Locke (1987)	53	6,635	.43	Corrected <i>d</i> ; same studies as Mento et al., plus four

reported the goal difficulty results summarized in Table 2-1. The fifth (Hunter & Schmidt, 1983) is simply a translation into a *d*-score of Locke, Ferren, McCaleb, Shaw, & Denny's (1980) mean reported improvement of 16% for 17 field studies. The number of studies in the meta-analyses ranges from 17 to 53 and the N for subjects from 1,278 to 6,635. The mean effect sizes range from .42 to .80, a range similar to that for the goal difficulty studies. In percentage terms the *d*-scores represent performance effects of 8.4% to 16%.

A final meta-analysis (not shown) was conducted by Guzzo, Jette, and Katzell (1985) using only field studies. However, their results are difficult to interpret because, although the number of effect sizes calculated was reported, the number of separate studies and the number of subjects involved were not. Furthermore, no distinction was made between studies of goal difficulty and studies comparing specific, hard goals with do best goals. The mean effect size for performance in Guzzo et al.'s analysis was .65. This figure falls within the range of the *d*-scores reported in Tables 2-1 and 2-2.

Enumerative reviews of the specific, hard vs. do best studies were provided in the same articles that reviewed the goal difficulty studies (Latham & Yukl, 1975a; Locke, 1968b; Locke et al., 1981; Steers & Porter, 1974; plus Latham & Lee, 1986). Locke et al. (1981) found that 51 of 53 studies, or 96%, showed significant or contingently significant effects in favor of specific, hard goals. The number of studies of the specific, hard goal vs. do best effect is now almost four times that included in the largest meta-analysis and in the most recent enumerative review. There have been a total of 201 studies of this effect, with 183, or 91%, of them showing significant (152 studies) or contingently significant (31 studies) effects. Eighteen studies showed no significant effect or a reverse effect. The successful and contingently successful studies are listed in Appendix B.

Since the goal to do one's best is a hard goal, it is necessary to explain why it leads to better performance than trying for a specific, hard goal. Our explanation is that the ambiguity of difficult goals allows people to give themselves

the benefit of the doubt in evaluating their performance; thus a wide range of performance levels may be interpreted as being compatible with doing one's best. In contrast, in the case of a specific, hard goal only beating a single, high score is compatible with success. In support of this interpretation, Kernan and Lord (in press) found that individuals with no specific goals generally evaluated their performance more positively than those with specific, hard goals in response to varying degrees of negative feedback. Mossholder (1980) obtained a similar finding. Similarly, Mento and Locke (1989) found that subjects with do best goals anticipated more satisfaction from every level of anticipated performance than subjects with specific, hard goals (see Chapter 3 for details). The less-stringent standards used by do best subjects to evaluate themselves may explain Locke and Bryan's (1966a) finding that subjects with specific, hard goals were significantly less likely than do best subjects to fall below their previous best performance on a learning task.

ANALYSIS OF CONTINGENT RESULTS AND FAILURES

In assessing the validity of a theory it is important to understand failures as well as successes in prediction. A theoretical prediction can be wrong for at least two reasons: (1) The theory was not tested correctly; that is, the study or experiment, as conducted, did not fall within the theoretical domain of the theory. Usually such errors involve design or measurement problems; in addition, limitations in the data analysis may also be involved. (Guidelines for conducting successful goal setting experiments in laboratory and field settings are given in Appendixes C and D.) (2) The theory is wrong in some respect; that is, in some situations it does not apply, or it does not take account of some variables that affect or limit the operation of key relationships.

Table 2-3 lists the studies that showed a contingent or negative result. They are classified as to the hypothesized cause of the failure. We have done this separately for the goal difficulty studies and the specific, hard goal vs. do best studies. In addition, we have rated each study, on a scale of 1 to 3, in terms of our degree of confidence in being able to account for the negative result; 3 means we were quite confident in our attribution, 2 that we were somewhat confident and 1 that we were not very confident. Some studies are listed more than once because they fall into more than one causal category. The causal categories are based either on known moderators of goal setting (commitment, feedback, task complexity), all of which are discussed in later chapters, or on issues of experimental design. There is also a miscellaneous category.

Category (A) lists studies in which lack of goal commitment is the probable cause of the negative result. A rating of 3 indicates that direct evidence for this was given in the study (e.g., because commitment was directly manipulated; Erez & Zidon, 1984). In other cases there was indirect evidence. For example, public commitment has been found to induce stronger goal commitment than private commitment (Hollenbeck, Williams & Klein, 1989). Similarly having subjects set their own goals before being assigned goals has been found to lead to lower commitment than not setting personal goals first (Erez, Earley, & Hulin, 1985). We extrapolated these findings to the studies by Hayes et al. (1985), Lyman

Table 2-3 Studies Showing Null or Contingent Results for Goal Setting: Categorized by Hypothesized Cause

A. COMMITMENT	
Goal Difficulty	
(3) ^a Baron & Watters (1982)—44% goal rejection rate (see also Sections C & D below)	
(3) Bayton (1943)—no effect for low ego-involvement task	
(2) Dossett, Latham, & Saari (1980)—no effect if surveys unsigned or returned to experimenter rather than signed and returned to supervisor	
(3) Erez & Zidon (1984)—no effect for low-commitment Ss	
(2) Kausler (1959)—no effect for goals measured as "hopes"	
(3) Miller & Steele (1984)—no apparent effect for hard, assigned goals with bonus incentives; effect mediated by self-set goals	
(1) Mowen, Middlemist, & Luther (1981)—similar to Miller & Steele	
(2) Organ (1977)—second study; lower commitment to hard goals than to others	
(2) Stedry (1962)—no effect for Ss who set own goals after being assigned goals; probable goal conflict	
(1) Stedry & Kay (1966)—no effect for goals seen as impossible	
(1) Steers (1975)—no effect for Ss low in need (desire) for achievement	
Specific, Hard Goal vs. Do Best or No Goal	
(1) Bandura & Simon (1977)—no effect of distal goals	
(3) Brickner & Bukatko (1987)—second study; hard goal Ss reported lower subjective effort than do best Ss ($p < .10$)	
(3) Erez & Zidon (1984)—same as above	
(2) (2) Hayes et al. (1985)—two studies; no effect for private goal setting conditions	
(3) Ivancevich (1974)—no effect for low organizational commitment plant	
(2) Latham & Yukl (1975b)—second study; goal setting probably not implemented	
(2) Lyman (1984)—no effect in private goal setting condition	
(2) Mahoney (1974)—in goal-without-rewards condition, Ss were less motivated to begin with	
(2) Stedry (1962)—same as above	

*The number in parentheses next to each study represents a rating of 3, 2, or 1 to indicate our degree of confidence in being able to account for the contingent or negative result. **Note:** Some studies appear in more than one category.

3: A rating of 3 represents high confidence in our explanation, usually because the reason was given in the study itself (e.g., goal setting failed to work because feedback was withheld from some groups, the goal manipulation failed, commitment was manipulated or measured, the specific goal was easy, there was no training on a complex task, etc.).

2: A rating of 2 indicates that there is a reasonably plausible explanation for the result (e.g., the goal manipulation was private, feedback was limited or false, the task was seemingly complex, the design was suspect, etc.).

1: A rating of 1 means that the explanation is speculative. There are a number of reasons why the goal effect might have failed, but little direct evidence for any of them. In a few cases there is no obvious explanation for the result.

*Indicates study was noted previously within the same (goal difficulty or hard goal-do best) subsection of a previous main section (A, B, C, etc.).

Table 2-3 (cont.)

B. COMPLEX TASK OR COMPLEX TASK WITH NO TRAINING (OR FALSE TRAINING)	
Goal Difficulty	
(3) Huber (1985b)—complex computer maze (see also Section G regarding artifact)	
Specific, Hard Goal vs. Do Best or No Goal	
(2) Earley, Connolly, & Ekegren (1989)—multiple cue probability learning, no training provided (two additional studies added later to original manuscript)	
(2) Earley, Lee, & Lituchy (1989)—no training condition	
(2) Earley, Connolly, & Lee (1988)—first study; same as above	
(3) Earley & Perry (1987)—for subjects primed with unsuitable strategy	
(3) Huber (1985b)—same as above (see also Section G)	
(3) Wood, Bandura, & Bailey (in press)—most complex version of Wood management simulation game	
C. CRITERION DID NOT MATCH GOAL	
Goal Difficulty	
(3) Baron & Watters (1981)—goals were for calorie intake, but criterion was weight loss; caloric intake means paralleled goals but not tested for significance	
(3) Baron & Watters (1982)—same as 1981 study above; see also Section A regarding goal rejection	
Specific, Hard Goal vs. Do Best or No Goal	
(3) Baumler (1971)—goals were for each section manager's job (task), but criterion was for combined performance that depended on interaction between section managers in interdependent condition	
D. DESIGN, MANIPULATION, AND/OR MEASUREMENT PROBLEMS	
Goal Difficulty	
(3) Baron & Watters (1982)—see Section A above	
(3) Campbell (1984)—easy-hard goal manipulation failed (all goals were two S.D.'s above actual performance); see also Section F	
(3) Taylor (1981)—before setting goal, Ss only had fake feedback on related tasks	
Specific, Hard Goal vs. Do Best or No Goal	
(2) Adler & Goleman (1975)—T-group Ss had 28 hours of "practice" and feedback, while non-T-group Ss probably had little or none	
(2) Mitchell, Rothman, & Liden (1985)—unclear goal measure (see also Section E below)	
(3) Rust, Strang, & Bridgeman (1977)—goal manipulation failed (all were do best Ss)	
(3) Weinberg, Bruya, & Jackson (1985)—second study-goal manipulation failed (83% of do best Ss set specific goals)	

Table 2-3 (cont.)

E. FEEDBACK ELIMINATED, FALSE, OR LACKING	
Goal Difficulty	
(3) Becker (1978)—goals had no effect when feedback withheld	
(3) Das (1982a)—standard and hard goal groups (4 and 5) were given no feedback	
(3) Erez (1977)—no goal effect for Ss not given feedback	
(2) Forward & Zander (1971)—feedback was false (see also Section G below)	
(3) Hom and Arbuckle (1986)—goals were set without feedback regarding prior performance	
(2) Oldham (1975)—Ss had no formal feedback during performance period	
(3) Strang, Lawrence, & Fowler (1978)—goals had no effect when feedback withheld	
Specific, Hard Goal vs. Do Best or No Goal	
(3) Becker (1978)—same as above	
(2) Ivancevich & McMahon (1982)—goals plus self-feedback Ss (who were the ones to get frequent or continuous feedback) performed better than others	
(2) Mitchell, Rothman, & Liden (1985)—Ss had no formal feedback during performance period	
(2) Motowidlo, Loehr, & Dunnette (1978)—Ss had no formal feedback during performance period	
(3) Strang, Lawrence, & Fowler (1978)—same as above	
F. SPECIFIC GOAL NOT DIFFICULT OR RESTRICTED GOAL RANGE	
Goal Difficulty	
(3) Campbell (1984)—easy-hard goal manipulation failed (all goals were two S.D.'s above actual performance)	
(3) Crawford, White, & Magnusson (1983)—the goals of high previous performers were lower than their own previous performance	
(3) Hall, Weinberg, & Jackson (1987)—difficulty level of two goals was similar (success rates 46% and 68%)	
(3) Klockmann (1985)—narrow range of goal difficulty (success rates 2%, 9%, and 30%).	
Specific, Hard Goal vs. Do Best or No Goal	
(3) Amabile, DeJong, & Lepper (1976)—specific goal was very easy (100% success rate)	
(3) Crawford, White, & Magnusson (1983)—same as above	
(3) Hinsz (1984)—specific goal was very easy (90% success rate)	
(3) Hollingsworth (1975)—specific goal was moderate (44% success rate)	
(3) Latham & Yukl (1975b)—Ss setting goals participatively set harder goals than Ss with assigned goals	
(3) Manderlink & Harackiewicz (1984)—specific goals were very easy (88% success rate)	
(3) Organ (1977)—first study; goal was relatively easy (most Ss scored 1 S.D. above the goal)	
(3) Siegfried, Piemont, McCarter, & Dellinger (1981)—goal was very easy (mean performance of 10 was way above assigned goal level of 6)	
(3) Weinberg, Bruya, & Jackson (1985)—first study; goal was moderately easy (57% success rate)	

Table 2-3 (cont.)

G. MISCELLANEOUS	
Goal Difficulty	
(2) Barry, Locke, & Smith (1988)—goals not effective in firms lacking competence	
(1) Bigoness, Keef, & DuBose (1983)—correlational study, Ss high in Internal Locus may have had higher self-efficacy than those low on this trait; validity of supervisor and goal difficulty ratings unknown	
(1) Campbell & Ilgen (1976)—goal effect significant about half the time (random variation?)	
(1) Carroll & Tosi (1970)—high self-assurance Ss may have had higher self-efficacy	
(1) Dachler & Mobley (1973)—extraneous factors may have affected performance; also in plant 1	
(1) lack of effect for short-tenure Ss may have been random variation with a small N (40)—plant 2 correlation was the same for long- and short-tenure Ss; lack of significance was due to smaller N for latter	
(1) Dossett, Latham, & Mitchell (1979)—two studies; lack of effect within assigned conditions may	
(1) have been due to poorer matching of goals with ability in study 1; no explanation for study 2	
(1) Forward & Zander (1971)—in addition to false feedback (see Section E above), high pressure for performance may have distorted goal estimates	
(1) Frost & Mahoney (1976)—puzzle task; visual aspect of task may have provided feedback for all Ss and affected personal goals	
(3) Garland (1985)—goal effect was not significant in path analysis after controlling for valence but was significant otherwise (see also Chapter 3)	
(3) Huber (1985b)—penalty for "peeking" at maze was artifactual, since it eliminated operation of two key goal mechanisms: effort and attention (direction)	
(1) Ivancevich & McMahon (1977a)—high-growth need strength Ss may have been more committed to goals than low-growth need strength Ss—no explanation for lack of significance for remaining measures	
(1) Ivancevich & McMahon (1977b)—lack of relationship for blacks may have reflected lower commitment and/or self-efficacy	
(1) Ivancevich & McMahon (1977c)—lack of relationship for low-education Ss may have reflected lower commitment and/or self-efficacy	
(1) Jackson & Zedeck (1982)—two tasks; no ability controls; easy goal Ss may have set higher	
(1) personal goals	
(1) Lichtman & Lane (1983)—study difficult to understand; feedback lacking	
(2) Matherly (1986)—prior success and failure may have affected self-efficacy	
(1) McCaul, Hinsz, & McCaul (1987)—first study; effect significant for persistence, not performance, but persistence was associated with performance	
(1) Neale, Northcraft, & Earley (1987)—lack of profit effect could have been due to easy goal Ss setting higher goals; personal goals not measured	
(1) Nebeker (1987)—no measures of personal goals, commitment, self-efficacy, or valence reported	
(3) Peters, Chassie, Lindholm, O'Connor, & Klein (1982)—goal setting not effective with situational constraints (manipulated variable)	
(1) Roberson-Bennett (1983)—significant effect for two of three tasks (random variation?)	
(1) Shalley, Oldham, & Porac (1987)—opposite finding of Dossett et al. (1979); no explanation	
(1) Vance & Colella (1988)—assigned goal constantly increased (conflict with personal goal?)	
(3) Wood & Bandura (in press, a) and Wood, Bandura, & Bailey (in press)—correlations for third	
(3) block in these studies and in Bandura & Wood (in press) are substantial (mean $r = .62$; see Chapter 4), but high covariation between goals and self-efficacy results in low path coefficient, but which is significant for the three studies combined	
(1) Zander & Newcomb (1967)—lack of goal effect for funds with a history of failure may be due to low self-efficacy or the distortion of goal choice process due to desire to improve	

Table 2-3 (cont.)

Specific, Hard Goal vs. Do Best or No Goal

- (1) Antoni & Beckmann (1987)—no goal effect for Ss high in trait of persistence and attention (goal substitute?)
- (1) Brickner & Bukatko (1987)—no goal effect for Ss high in identifiability (goal substitute?)
- (1) Buller & Bell (1986)—no goal effect for quality, but marginal effect for quality-relevant behaviors; many uncontrolled variables
- (1) Buller (1988)—follow-up on above; many uncontrolled variables
- (3) Huber (1985b)—subjects penalized for seeking information about maze (see above)
- (1) Hyams and Graham (1984)—no goal effect for Ss high in Initiative (goal substitute?)
- (1) Jackson & Zedeck (1982)—manual task, ability not controlled
- (1) Kanfer & Ackerman (1988)—studies 1 and 3, feedback diverted attention; criteria did not match goal; personal goals not measured, etc.
- (1) Latham & Saari (1979a)—no effect for assigned goals, but ability not controlled
- (2) Locke & Bryan (1967)—two pilot studies; mean difference in correct direction but small N's (8 & 9)
- (1) Pritchard et al. (1981)—no effect for high performers (already near asymptote?)
- (1) Schunk (1983)—assigned goals were only suggestive; actual, personal goals were not measured
- (1) Shaw (1984)—effect for high-ability Ss may reflect goal-ability interaction described in Chapter 9; second half effect may reflect time lag for goals in somewhat complex task
- (2) Weed & Mitchell (1980)—specific, hard goal Ss did show greater gain scores than do best Ss, but difference not tested directly; poor ability matching; personal goals not measured; possible time lag effect

(1984), and Stedry (1962). In other cases our explanations were more speculative; for example, the lack of effect of distal goals by Bandura and Simon (1977) was attributed to a possible commitment effect, although no direct evidence was provided by them for such a conclusion.

Category (B) includes studies in which the negative results may have been due to the use of complex tasks without suitable task strategies. In the case of the studies by Earley and his colleagues with the multiple cue probability learning task, we were somewhat cautious (in giving them confidence ratings of 2), since we believe the task is less complex than the management simulation game used by Wood. In the Wood, Bandura, and Bailey (in press) study, task complexity was actually manipulated. The Earley and Perry (1987) study included a condition where subjects were primed with an unsuitable strategy. The confidence rating of 3 for the Huber (1985b) study was as much due to the artifact of penalizing subjects for seeking knowledge about the layout of the maze as for the task being complex. (Thus this study is also listed in category G.)

Category (C) includes studies in which the goal did not match the criterion measure used. The most frequently cited of these, and the one that is most frequently misinterpreted, is the chemical plant simulation study by Baumler (1971). He found that relative to the do best goals, the specific, challenging goals facilitated organizational performance when the tasks were independent but hurt performance when the tasks were interdependent. In the independent condition, the performance of the two section managers was additive so that, if each did well,

total organizational performance was high. In the interdependent condition, the relation between the jobs of the two managers was interactive so that, if each of them focused only on doing his own job well, performance of the organization as a whole was undermined. What has been overlooked, however, is that *the section managers were not given goals for the performance of the organization as a whole, but only for their own jobs*. This was beneficial in the independent condition but harmful in the interdependent condition. Since the goals were not matched to the criterion and were actually antagonistic to the overall criterion in the interdependent condition, it is not surprising that they worked poorly in that situation.

The other two studies in this category (Barron & Watters, 1981, 1982) had goals for caloric intake, but the criterion was weight loss. Since weight loss depends on factors other than caloric intake, such as exercise, the matching of goal and criterion was inexact. The 1981 study, incidentally, reported means for caloric intake that typically matched the difficult levels of the goals, but these means were not tested for significance. It should be noted that other weight loss studies have used similar goals and criterion measures and yet obtained positive results (e.g., Bandura & Simon, 1977). We have no explanation for the discrepancy in results.

Category (D) in Table 2-3 involves various design, manipulation, and measurement problems (e.g., the goal manipulations failed). A number of these studies in this section are also classified elsewhere.

Category (E) involves studies where there was inadequate feedback. Ratings of 3 were given mainly to studies that actually manipulated feedback (Becker, 1978; Das, 1982a; Erez, 1977; Strang, Lawrence, & Fowler, 1978). In other studies it appeared as though subjects had little explicit feedback concerning goal progress; however, experimental reports do not always provide enough detail to make unequivocal inferences. False feedback has been used upon occasion in successful studies (Bandura & Cervone, 1983), but it is clearly a questionable procedure because it raises the possibility of a conflict between the feedback the subjects get from the task and that which they get from external sources. Such conflicts can be processed in many different ways and can have variable effects on self-efficacy.

Category (F) lists studies in which the range of goal difficulty was very low or in which do best goals were compared with specific but easy or moderate rather than hard goals. While goal theory is somewhat vague about how big a range is needed to produce a significant difference, it seems clear that the smaller the range, the lower the chances of getting a significant difference. Furthermore, the difficulty effect will depend on how committed the subjects are to their goals. For example, if moderate goal subjects attain their goals and then try to do more, they are not really consistent moderate goal subjects. If subjects are committed only to their goals, and thus stop working when they reach them, then a small range of goal difficulty can produce significant effects (e.g., see Locke, 1982b, though individual t-tests are not reported). The goal difficulty effect also assumes that subjects have sufficient ability to attain or at least approach the goal. Goal theory does not predict any differential effect of two or more goals if they are way beyond everyone's ability (e.g., as in Campbell, 1984). In some cases moderate goals may lead to better performance than do best goals (e.g., Frost & Mahoney, 1976),

perhaps because the moderate goal subjects set themselves harder goals than they were assigned or because the do best subjects were not trying their hardest. Nevertheless, do best subjects should only be consistently exceeded by subjects with specific, difficult goals.

Section (G) of Table 2-3 lists a miscellaneous group of studies. Our explanation of the failures is in most instances speculative. For example, in some studies the goal effect is significant only part of the time, e.g., on some trials and not others (Campbell & Ilgen, 1976). This could involve random variation. In other studies the N's were small (Locke & Bryan, 1967). The results of Dachler and Mobley (1973) may have been caused by extraneous factors such as workload, additional task assignments, or organization of work which overrode the effects of personal goals. The shorter-tenure groups were also much smaller than the longer-tenure groups, which clearly affected the significance of the *r*'s in plant 2. The results of the three Ivancevich and McMahon studies (1977a, b, c) could have been due to commitment or self-efficacy differences. The commitment measures used showed no direct relationship to performance, but goal commitment could have differed between subgroups. This was ruled out in Ivancevich and McMahon (1977a); however, the growth need strength moderator itself could have been an implicit and more accurate measure of commitment. In some studies there are many possible explanations for the lack of goal effects; for example, Nebeker (1987) reported no measures of personal goals, commitment, or self-efficacy.

An intriguing suggestion from three of the studies (Antoni & Beckmann, 1987; Brickner & Bukatko, 1987; Hyams & Graham, 1984) is that *there may be certain personal traits or experimental conditions that act as goal substitutes or goal equivalents*. In those three studies subjects who were high on the traits of persistence and attention, or initiative, or whose work could be identified by others, performed just as well with do best goals as with specific, hard goals. It is possible that incentives (e.g., money, competition) may also affect performance independently of their effects on goals, goal commitment, or self-efficacy, possibly through a subconscious process. This remains to be seen and suggests provocative avenues for further research. (The issue of incentives is examined in Chapter 6.) A summarized, enumerative classification of the goal setting studies is shown in Table 2-4. The contingent and unsuccessful studies are classified as to our degree of confidence in accounting for the failures using the 3-point scale noted earlier. Failures classified as 3 or 2 are explainable with some degree of confidence, and these explanations are consistent with the tenets of goal setting theory. For the studies classified as 1 the explanations must remain speculative; it is not clear if these studies would require a revision of goal setting theory or not, since the results could have been caused by a variety of unmeasured factors. The number of studies classified as 1 is only 37. This represents fewer than 10% of the 393 findings on the relation of goal difficulty-specificity and performance conducted to date.² (It should be noted that these are not 393 different studies, since some studies provided data relevant to both the goal difficulty and the specific, hard vs. do best aspects of the theory.)

²We received reports of additional unpublished or submitted goal setting studies as this chapter was being written and revised. Thus the actual number of these studies is above 400. However, after a certain point in writing this chapter, we had to say "enough."

Table 2-4 Classification of Results of Studies and Confidence in Explanation of Reasons for Contingent Results or Failures

GOAL DIFFICULTY	NUMBER	CLASSIFICATION OF CAUSES OF CONTINGENT RESULTS OR FAILURE ^a
Successful	140	
Contingent	35	52
Unsuccessful	17	
	192	52
SPECIFIC, HARD GOALS VS. DO BEST		
Successful	152	
Contingent	31	49
Unsuccessful	18	
	201	49
COMBINED		
Successful	292	
Contingent	66	101
Unsuccessful	35	
Total	393	101

^a3-point scale is explained in the Table 2-3 footnote—3: strong confidence in explanation; 2: some confidence; 1: speculative.

There is no convincing evidence that there is any study in the literature that failed to find a significant effect for goals and that (1) measured and/or controlled for ability, personal goals (regardless of assigned goals), goal commitment, and self-efficacy or expectancy; (2) provided feedback showing progress in relation to goals; (3) used a reasonable degree or range of goal difficulty; (4) showed successful manipulation checks; (5) used a simple task or a complex task with trained, suitable task strategies; (6) did not have artifacts such as nonmatching goal and criterion measures or external blocks to performance. This is not to say that no such studies exist, but only that it is doubtful if any studies have been conducted to date.

On the negative side, goal theory is vague as to how hard a hard goal should be, how great the range of goal difficulty must be so that it is "enough," and when a task is to be classified as simple or complex. All of this makes it easy, perhaps too easy, to explain away negative results after the fact. Even without attempts at post hoc explanations, however, goal theory shows a remarkable consistency of results—a consistency that has held up for a period of many years.

GENERALITY OF RESULTS

The replicability of a set of experimental findings, while desirable, is not sufficient in itself to show that the results are generalizable. The replicated results could conceivably be based on a single task, setting, measure, and/or type of subject. The results of goal setting studies, however, have been replicated across a wide variety of tasks, settings, measures, subjects, time spans, criterion measures, and research designs. In a narrative review Latham and Lee (1986) found that the results of goal setting studies generalize across laboratory and field settings, quantity and quality criteria, soft and hard criteria, individual and group goals, and goals that were assigned or set participatively. Here we will extend their analysis.

Tasks

Goal setting experiments have been conducted with 88 different tasks. These are listed in alphabetical order in Table 2-5. The number of studies using each task is specified for goal difficulty studies, for specific, hard vs. do best goal studies, and for both combined.

Table 2-5 Type and Frequency of Tasks Used in Goal Setting Studies

	LAB, FIELD, OR SIMULATION	GOAL DIFFICULTY	HARD GOAL VS. DO BEST	TOTAL
Achievement test performance	L		1	1
Air traffic control	S		3	3
Anagrams, boggle, word games	L	10	4	14
Archery	F		1	1
Arithmetic/computation	L	16	16	32
Assembly (toys, etc.)	L	8	7	15
Bargaining	S	5	5	10
Beverage consumption	F	2		2
Body checking (hockey)	F		1	1
Can collecting	F		1	1
Checking soft-drink machines	F	1	1	2
Chess	L/F	1		1
Choosing geometrical figures	L	2		2
Classroom behavior	F		1	1
Clerical (miscellaneous)	L/F	18	11	29
Coding/code learning	L	2		2
Color discrimination	L	2		2
Complex coordination	S		1	1
Computer game	L	1		1
Container use	F		1	1
Course work hr/performance	F	9	2	11
Customer callback	F		1	1
Diecasting	F		1	1
Drilling holes	S	1	1	2
Driving (car, truck)	F	1	1	2
Dynamometer performance	L	2	2	4
Elbow flexion	L	1	1	2
Energy conservation	F	1	1	2

Table 2-5 (cont.)

	LAB, FIELD, OR SIMULATION	GOAL DIFFICULTY	HARD GOAL VS. DO BEST	TOTAL
Engine overhaul	F	1	1	2
Ergometer	L	2	1	3
Exercise (general)	F	1	4	5
Faculty research	F	1		1
Finding objects in pictures	L		2	2
Handball	F	1		1
Health-promoting behaviors	F		2	2
Injury rate	F	1		1
Juggling	F		1	1
Jumping	L		1	1
Key punching	F		1	1
Labeling	L		1	1
Lego construction	L	1	1	2
Listing nouns, objects, uses	L	23	11	34
Listing job behaviors	F		1	1
Logging	F	1	6	7
Luchins water jar problems	L	1	1	2
Manual manipulation	L		1	1
Maintenance & technical work	F	3	2	5
Making class schedules	L		2	2
Managing, supervision, management simulations	F/S	9	5	14
Management training	F	1		1
Marine recruit performance	F	1		1
Maze learning	L	1	3	4
Mental health services	F		1	1
Mining	F		2	2
Multiple cue probability learning	L	1	3	4
Nursing	F	1		1
Pain tolerance	L		1	1
Perceptual speed	L	11	4	15
Performance appraisal behaviors or scores	F	3		3
Personality change	F		2	2
Praising	F		1	1
Proofreading	L/F	1	3	4
Production/manufacturing/factory work	F	3	8	11
Puzzles	L	2	2	4
Reaction time	L	10	4	14
Reading, prose learning	L/F	8	15	23
Returning questionnaire surveys	F	1	1	2
Safety behaviors	F		5	5
Sales/selling	F	4	4	8
Scientific, engineering, & R&D work	F	3	3	6
Service work	F		1	1
Sewing	F	1	3	4
Ship unloading	F		1	1
Sit-ups	L		2	2

Table 2-5 (cont.)

	LAB, FIELD, OR SIMULATION	GOAL DIFFICULTY	HARD GOAL VS. DO BEST	TOTAL
Spelling	L	1	2	3
Sports (field hockey)	F	1		1
Study behaviors & skills	F		2	2
Teller activities	F		1	1
Tracking	L	3	1	4
Truck maintenance	F		1	1
Typing, computer data entry	F	3	1	4
United Fund performance	F	2		2
Video game performance	L	1		1
Weight lifting	F	1		1
Weight loss, eating behaviors, food intake	F	2	8	10
Welding	F		1	1
Wheel turning	L		3	3
Writing sentences	L		4	4
Total		194*	201	395

*This total is higher than the 192 total in Table 2-4 because some reports counted as one study, such as Mace (1935), used more than one task.

The twelve most frequently used tasks are listed in Table 2-6. The distribution of task used is clearly not random, with a large percentage of the studies using fairly simple laboratory tasks (listing nouns, arithmetic/computation, etc.). However, there are an encouraging number of frequently used tasks that are more complex (reading, prose learning, managing and management simulations, bargaining, production).

Table 2-6 Most Frequently Used Tasks in Goal Setting Research

TASK	FREQUENCY OF USE
Listing nouns, objects, uses	34
Arithmetic/computation	32
Clerical	29
Reading, prose learning	23
Perceptual speed	15
Assembly (toys, etc.)	15
Managing/management simulations	14
Anagrams	14
Course work	11
Production, manufacturing	11
Bargaining	10
Weight loss, eating behaviors	10

Settings

Table 2-5 also indicates whether each task or type of task used was in a laboratory or a field setting, or whether it was a simulation. Some tasks were used in both

types of settings (e.g., clerical tasks) and thus are designated as both. Table 2-7 shows the number of tasks and number of studies designated as laboratory or lab/field, and field or simulation. A greater variety of tasks have been used in field settings than in laboratory settings (53 vs. 35), even though more total studies have been done in laboratory than in field settings (239 vs. 156). These data make it unmistakably clear that goal setting findings generalize beyond the laboratory (see also Locke, 1986a).

Table 2-7 Frequency Distribution of Task Types and Studies

TASK TYPE	NUMBER OF TASKS OF THIS TYPE	TOTAL NUMBER OF STUDIES
Laboratory or Lab/Field	35	239
Field or Simulation	53	156
Total	88	395

Subjects

While a clear majority of subjects used in goal setting studies have been white male and female college students, many other types of subjects have included children (Earbaugh & Barnett, 1986; Masters, Furman, & Barden, 1977), retardates (Kliebhan, 1967; Principato, 1983), blacks (Bayton, 1943; Ivancevich & McMahon, 1977b; Latham & Yukl, 1975b), loggers (Latham & Kinne, 1974), factory workers (Koch, 1979), managers (Berlew & Hall, 1965), Marine recruits (Ashworth & Mobley, 1978), engineers and scientists (Latham, Mitchell, & Dossett, 1978), and college professors (Taylor, Locke, Lee, & Gist, 1984). Clearly the theory is not limited to any one subject population. The total number of subjects used in the goal setting studies reviewed in Table 2-4 is nearly forty thousand!

Countries

While the overwhelming majority of goal setting studies have been done in the United States, such studies have also been conducted in at least seven other countries: Australia (Wood, Bandura, & Bailey, in press), Canada (Bavelas & Lee, 1978; Latham & Marshall, 1982), the Caribbean (Punnett, 1986), England (Earley, 1986c; Mace, 1935), West Germany (Antoni & Beckman, 1987; Kleinbeck, 1986), Israel (Erez & Zidon, 1984), and Japan (Matsui, Kakuyama, & Onglatco, 1987; Matsui, Okada, & Mizuguchi, 1981; Matsui, Okada, & Kakuyama, 1982). This is strong evidence that the theory applies across cultures.

Criteria

Since the effect of goals depends on the content of the goal, there should be no limit to the types of measures used as performance criteria. Criteria used to date have included measures of physical effort (Bandura & Cervone, 1986), speed of reaction (Locke, Cartledge, & Knerr, 1970), quantity of output without regard to quality (Locke, 1966d), output with quality controlled (Pritchard & Curtis, 1973), number of correct responses (Locke, Mento, & Katcher, 1978), production efficiency (Crawford, White, & Magnusson, 1983), performance quality (Koch, 1979), time spent on the task (LaPorte & Nath, 1976), profit (Huber & Neale,

1987), costs (Klein, 1973), job behavior (Latham, Mitchell, & Dossett, 1978), performance appraisal ratings (Peters et al., 1984), and survey returns (Dossett, Latham & Saari, 1980).

Virtually any type of action that can be measured and controlled can be used as a dependent variable. As noted earlier, to be effective the goal must match the performance measure used. This does not preclude, of course, setting goals for actions (such as job behaviors) that have a direct causal effect on the outcome or criterion measure (such as sales or customer satisfaction). However, the effect of goals on such an outcome measure will depend on the strength of the causal relation between behavior and outcome. Usually the criteria used have been measured objectively, but there have been studies using more subjective criteria. For example, some studies of behavior on the job have employed trained, external observers as raters (Komaki, Barwick, & Scott, 1978), and others have used supervisor estimates (Latham, Mitchell, & Dossett, 1978).

Time Spans

Successful goal setting studies have covered time spans ranging from one minute to several years. The shortest goal setting study to date (1 minute) was conducted by Locke (1982b), and the longest (36 months) by Ivancevich (1974). There have been many time intervals as well—e.g., 5 minutes (Bandura & Cervone, 1986), 10 minutes (Garland & Adkinson, 1987), 20 minutes (Earley, 1985a), 30 minutes (Locke & Bryan, 1969b), 1 hour (Das, 1982a), 2 hours (Locke & Bryan, 1966a), 3 to 4 hours (Bassett, 1979), 3 weeks (Becker, 1978), 3 months (Alexy, 1985), 9 months (Latham & Baldes, 1975), and 12 months (Ivancevich, 1976). Clearly the effect of goal setting is not simply a short-term phenomenon. As Ivancevich (1972) pointed out, sustaining an organizational goal setting program across time requires an ongoing commitment on the part of higher management to the program. With such commitment, the Latham and Baldes (1975) intervention endured for nine additional years (according to company spokespeople).

Individual, Group, and Organizational Goals

The majority of goal setting studies have used the individual as the unit of analysis, but at least 41 of them appeared to have used group goals insofar as this could be inferred from the reports³ (Barry, Locke, & Smith, 1988; Baumler, 1971; Becker, 1978; Botterill, 1977; Buller & Bell, 1986; Buller, 1988; Fellner & Sulzer-Azaroff, 1985; Forward & Zander, 1971; French, 1950; Gowen, 1986; Haberstroh, 1960; Hinsz, 1984; Klein, 1973; Klein & Mulvey, 1988; Komaki et al., 1978, 1980, 1982; Lawrence & Smith, 1955; Latham & Kinne, 1976; Latham & Locke, 1975; Latham & Yukl, 1975b, two studies; Lichtman & Lane, 1983; Matsui, Kakuyama, & Onglatco, 1987, two studies; McCarthy, 1978; McCuddy & Griggs, 1984; Migliore, 1977, two studies; O'Connell, 1980; Pritchard et al., 1988; Ronan, Latham, & Kinne, 1973; Smith, Locke, & Barry, in press; Sorcher, 1967; Stedry & Kay, 1966; Watson, 1983; Weingart & Weldon, 1988, two studies; Zajonc & Taylor, 1963;

Zander, Foward, & Albert, 1969; Zander & Newcomb, 1967). The Smith et al. study was actually an organizational simulation. Thirty-eight of these 41 studies, or 93%, yielded positive or contingently positive results, virtually the same success rate as for the total group of studies. It is clear that group goals, in addition to or instead of individual goals, are necessary or at least facilitative when the task is a group rather than an individual one (Klein & Mulvey, 1988; Matsui, Kakuyama, & Onglatco, 1987; Mitchell & Silver, 1989).

Goal setting at the organizational level is the essence of the well-known technique of Management by Objectives, or MBO (e.g., see Carroll & Tosi, 1973). Separate reviews of the MBO literature are not included in this book; however, several reviews of this literature have been completed in recent years. Kondrasuk (1981) reviewed 185 studies of MBO. It should be noted that not all of these studies actually involved the organization as a whole. Most often they included one or more units of an organization; we calculated (from Kondrasuk's tables) that 91% of the 185 studies showed positive or contingently positive results. Kondrasuk argued, however, that the better-designed studies included in his review showed poorer results than the more poorly designed studies. Of the five studies in his best-controlled category (controlled experiments), one was successful, another was successful in the plant in which there was top management commitment, another was successful for nine out of the twelve months of the study, and two were failures. In one of the failures no data were reported. Using a conservative procedure of taking reports rather than studies as the unit of analysis (thus counting each report as one study, regardless of how many studies were reported in it), we found, through inspection of Kondrasuk's tables, that 91% of the reports that provided data claimed positive or contingently positive results. In contrast, 86% of the studies that did not provide data claimed positive results.⁴ By every reasonable method of counting, the overall MBO success rate (including contingent successes) hovers around the same 90% success rate obtained for the micro- and group-level studies noted earlier.

More recently Rodgers and Hunter (1989) conducted a meta-analysis of data from 68 MBO studies. Sixty-six, or 97%, of them showed positive results. The mean productivity increase for the 28 studies with ratio scale measures was 44%, a figure even larger than the previously reported 8% to 16% found for the micro-level studies. The mean percent increase in the MBO studies that were conducted with high management commitment was even higher. (These results will be discussed in Chapter 6.) Finally, a third review of the MBO literature by Carroll (1986) was as favorable as the reviews of Kondrasuk and Rodgers and Hunter. (For a narrative review of goal setting and MBO in the public sector, see Greiner, Hatry, Koss, Millar, & Woodward, 1981.) In a unique study of large companies, Welch and Pantalone (1985) found that companies that held stock price maximization as their ultimate financial goal showed a 34% greater increase in share growth over a ten-year period than companies that had other financial goals, such as maximizing earnings per share or return on equity.

Given all of the above, there is strong reason to conclude that goal setting works at the group and organizational (or unit) level as well as at the individual

³Not all of these studies were included in our previous listing because some involved simply the setting of goals without information as to their difficulty or specificity. Others were received too late to be integrated with any but this subsection.

⁴In our recount, we counted reports of multiple studies as single studies, whereas Kondrasuk counted them as multiple studies to get his count of 185.

level. Naturally one would expect more contingencies and complexities at the organizational level than at the individual level, but, except for commitment, these have not as yet been thoroughly studied. (These issues are examined in Chapter 14.)

Goal Source

Goals can be set by the individual (self-set); they can be assigned by others, such as the experimenter or supervisor; or they can be set jointly (participatively). The issue of the relative effectiveness of these different ways of setting the goal is so controversial that we have devoted an entire chapter to it (Chapter 7) and part of another (Chapter 6). Suffice it to say for now that, on the whole, all three methods of setting goals are equally effective.

Conclusions Concerning Generality of Results

The evidence is overwhelming that goal setting effects generalize across a wide range of tasks, settings, subjects, countries, criteria, and time spans. The results hold at both the individual and group levels and across different methods of setting the goal. Furthermore, while concurrent-correlation designs have been used, the great majority of goal setting studies have used experimental designs, thus leaving little doubt as to the causal role of goals. Few if any theories in the fields of industrial-organizational psychology, human resource management, and organizational behavior, or even psychology as a whole, can claim such consistent and wide-ranging support.

OVERALL COMPARATIVE ASSESSMENT OF GOAL SETTING THEORY

There have been four overall comparative assessments of goal setting theory in relation to other theories of work motivation. For now, we will discount the one by Locke and Henne (1986), since it was made by one of the present authors. Miner (1984) evaluated 32 theories in organizational science, including some that were not motivation theories. Goal setting theory was one of only four theories that he rated "high" on both the criterion of validity and that of usefulness in application (see also Miner, 1980).

In another assessment, Pinder (1984) reviewed all the major theories of work motivation and concluded that "goal setting theory has demonstrated more scientific validity to date than any other theory or approach to work motivation. . . . Moreover, the evidence thus far indicates that it probably holds more promise as an applied motivational tool for managers than does any other approach" (p. 169). Finally, Lee and Earley (1988) asked 127 leading scholars in the fields of organizational behavior and industrial-organizational psychology to rate 15 major work motivation theories on the criteria of scientific validity and practical usefulness. Goal setting theory was rated first in validity, a close second in practical usefulness, and a close second overall among the full sample of raters. Among the raters who were high in research productivity, it ranked first on the combined criteria.

The rank order correlations (ρ 's) between the overall ratings obtained by Lee and Earley (1988) and those reported by or provided by Miner, Pinder, and Locke and Henne (1986) were .74, .74, and .87, respectively (all p 's < .01). The latter ρ indicates that the ratings given by Locke and Henne (1986) were not biased. They rated goal theory and Bandura's (1986) social cognitive theory as the most valid of eleven motivation theories.

In summary, the evidence suggests that goal setting is one of the most valid theories, if not the most valid theory, of work motivation. It should be added that all the above assessments were made before this book was published and thus were not based on the full theory as presented here.

ADDITIONAL FINDINGS

There are a number of additional findings, exclusive of moderator effects, regarding goal setting and performance. These additional findings fall into the following categories: more effects of nonquantitative goals differing in difficulty; effects of goals in general and goal clarity; effects of goal specificity and difficulty on performance variance; performance with multiple goals; effects of goal importance and prioritization; effects of goals on "intrinsic" motivation; and the effects of proximal vs. distal goals. In most cases, however, these findings are less well established and/or less conclusive than those discussed previously.

Effects of Nonquantitative Goals Differing in Difficulty

Nearly all studies of goal difficulty have compared goals differing quantitatively—e.g., trying to list 4, 8, 10, 12, or 13 objects that could be called "heavy" in one minute (Locke, 1967c). Only a few studies have looked at goals differing in difficulty in which difficulty level was expressed verbally.

Bryan and Locke (1967b) found that, given generous time limits to complete an additional task, subjects trying to work "as fast as possible" worked faster than those trying to work "quickly," who in turn worked faster than those working at a "relaxed pace." Such differences did not emerge among subjects given very tight time limits, especially since the range of goals was smaller. For example, there were no subjects in this condition with the goal to work at a "relaxed pace." It was also found, however, that the goal to work "quickly" led to a significantly faster pace of work in the tight than in the loose time-limit condition. The inherent ambiguity of verbal goals allows them to be interpreted differently in different contexts; this is much less likely with quantitative goals. Telling a person to try to complete a task in 5.2 minutes means the same thing in any context (although the context could affect commitment to the goal).

Locke, Mento, and Katcher (1978) found that subjects told to do their best on a perceptual speed task and those told to work at 70% of capacity worked faster than subjects told to work at 30% of capacity. While the 70% and 30% goals were superficially quantitative, the percentages were not translated into actual numbers of problems to be completed and thus functioned more like vague than specific goals. Locke and Bryan (1968a) found that subjects trying to "do their best" or

work at a “reasonably fast pace” on a complex computation task worked significantly faster than subjects trying to “work with no effort.”

Finally, Locke, Chah, Harrison, & Lustgarten (1989) found that subjects trying to respond “as fast as possible” responded faster on a reaction time task than those trying to respond “moderately fast,” who in turn responded faster than those trying to respond “slowly.” Similarly, in their second study which used a “listing improvements” task, they found that subjects trying to list a “large” number of improvements listed more than those trying to list a “medium” or “low” number. Subjects trying to list a low number of improvements actually listed slightly more than those listing a medium number, revealing again the greater ambiguity of verbal goals. For subjects with very specific goals, the relationship between goal level and performance level was clearly linear.

In conclusion, nonquantitative goals varying in difficulty are related to performance in the same way as quantitative goals: the higher the goal, the higher the performance. These findings call into question Naylor and Ilgen’s (1984) claim that goals such as do your best, because of their vagueness, do not constitute a legitimate goal intervention. However, there is evidence that the goal-performance relationship is less reliable for verbal than for quantitative goals because of the greater ambiguity of the former relative to the latter.

Effects of Goals “in General” and Goal Clarity

A number of studies have looked at the effects on performance of goal setting in general—by in general we mean that the attributes of the goals in question either were not specified or were so multidimensional that the goal setting effects could not be attributed to any one or two attributes. Almost all these studies were correlational. Anderson and Schneier (1979), for example, found that football coaches who used goal setting and other positive techniques more often with their players had better won-lost records than those who used such techniques less often. Bottger and Woods (1988) found that sales representatives who used goal setting more often perceived themselves as putting forth more effort than those who used it less often. Goal emphasis was found by Bowers and Seashore (1966) to be associated with several performance dimensions among a sample of life insurance agencies. Formen’s use of goal setting in an in-basket test was found to be significantly associated with on-the-job performance in a study by Brass and Oldham (1976). Burke and Wilcox (1969) found that the use of goal setting in performance appraisal interviews was associated with performance improvement among public utility employees. Burton (1984) reported that a goal setting training program significantly improved the performance of swimmers in comparison with swimmers not given such training. Earley, Lee, and Hanson (1989) found that scores on a multidimensional goal setting questionnaire were positively associated with performance ratings for a sample of employees from 18 different companies. This was replicated by Lee, Bobko, Earley, and Locke (1988) with a large employee sample from one organization. Hall and Foster (1977) found that goal setting, defined as the desire to perform well, was significantly associated with self-rated effort but not performance on an executive game. Hall and Hall (1976) found that a similar measure was related to school performance of second to fourth graders in high-support but not low-support schools. The use of goal

setting was associated with rated work effectiveness among a sample of middle managers by Oldham (1976). White and Locke (1981) found that managers, clerical workers, and professionals at a multinational company reported that goal setting was most frequently associated with high performance periods and goal blockage with low performance periods. A negative result was obtained by Barnett (1977), who found that goal setting did not improve performance on a juggling task among ninth and tenth graders. Despite the typically unclear specification of how clear and difficult the goals were in these studies, the success rate more than matches the 90% rate obtained for the core findings reported earlier.

A handful of studies have looked only at the attribute of goal clarity or specificity. Gould (1979) found that employees who developed clear career goals and plans were more successful in their careers than those who did not. Lee and Niedzwiedz (1983) found that measures of goal specificity and clarity were significantly associated with performance for a sample of service employees. Onglatco (1988) found that the clarity of individual and group goals was significantly associated with the effectiveness of quality circles in a Japanese company. Steers (1975) found that goal specificity was significantly related to rated performance for supervisors high in need for achievement (measured by a self-report questionnaire).

Goal clarity or specificity measures, of course, do not specify the difficulty of the goals in question, but making goals specific may still be more effective than making them vague if subjects with vague or no goals do not address the performance dimensions specified by the clear goals. The issue of specificity effect is discussed further in the next section.

Effects of Goal Specificity and Difficulty on Performance Variance

There has been considerable confusion in the literature regarding the effects of goal specificity as such on performance. It is often asserted that specific goals will lead to better performance than nonspecific goals, even though it is obvious from our previous discussion that this is not necessarily the case. Specific, easy goals, for example, typically lead to *lower* performance than vague, hard goals such as “do your best” (Locke, Chah, et al., 1989). Specific goals would lead to higher performance than no goals if no goals meant that the person would not work on the task et al. Typically, however, a “no goal” manipulation means that individuals are asked to work on the task but are not given any explicit performance goals. By default, such a condition becomes roughly equivalent to a self-set goal condition with the difficulty level unspecified, although, as noted earlier, it may often be equivalent to a do best goal.

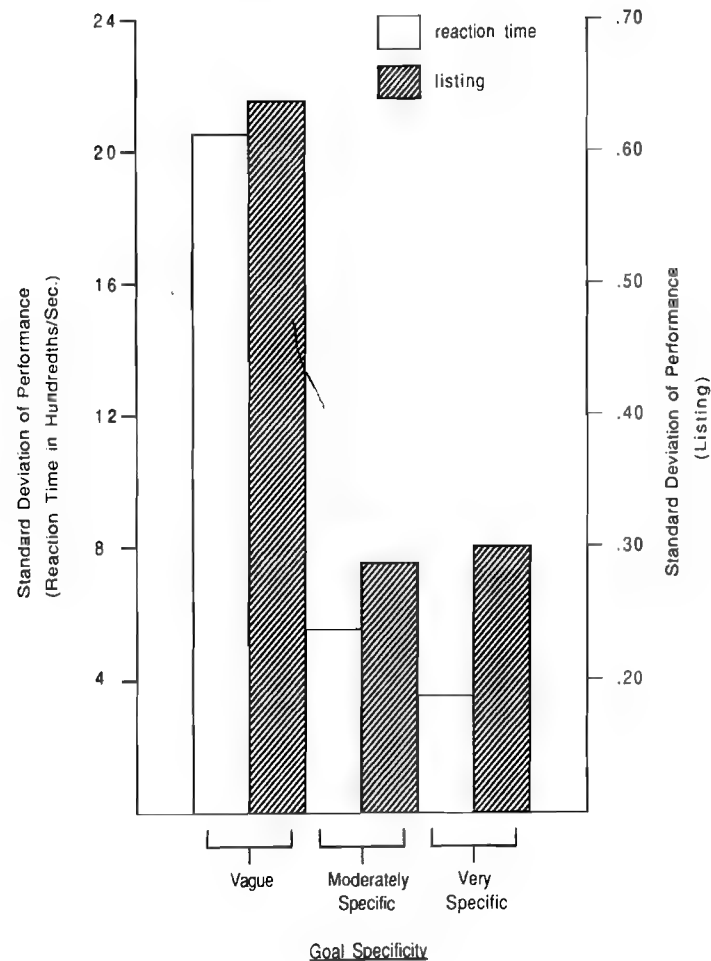
The only direct effect of goal specificity, divorced from goal difficulty, or goal level on performance is to reduce performance variance. This is because goal specificity reduces interpretive leeway as to the exact meaning of the goal. The only two studies that have fully separated the effects of goal specificity from those of goal difficulty or goal level are those of Locke, Chah, et al. (1989). In the first study using a reaction time task, subjects who were given vague goals were asked to respond as fast as possible, moderately fast, or slowly in the hard, medium, and easy goal conditions, respectively. In the second study, using a “listing improve-

ments" task, subjects in the vague conditions were asked to list a large, medium, and small number of ways to improve an undergraduate business program, respectively. In both studies subjects in the moderately specific goal conditions were asked to perform within a quantitative range, while subjects in the very specific goal conditions were asked to attain an exact quantitative score. In both studies it was found that the more specific the goal, the lower the performance variance. The results are shown in Figure 2-2.

It can be seen that the major difference in variance was between the vague goal conditions and the moderately specific and specific goal conditions (nonquantitative vs. verbal). However, the allowable ranges for the moderately specific conditions were narrow (e.g., list between two and four improvements), which

FIGURE 2-2 Effect of Goal Specificity on Standard Deviation of Performance

From Locke, Chah, et al., 1989.

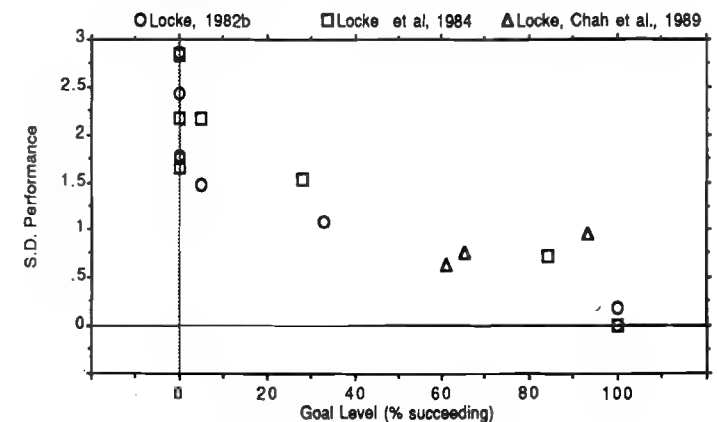


may have restricted performance more than would have been the case with a wide range.

In both studies, goal difficulty or level, regardless of specificity, was positively associated with performance level, a finding consistent with the literature. It was also found, however, that factors other than specificity could affect performance variability. One was a "ceiling" effect. Subjects who were trying to react as fast as they could showed less performance variance than those who were trying to respond moderately fast or slowly. Those with do best goals could only "err" in one direction, by responding slower than their best, whereas those with moderate or slow goals could "err" in either direction. Variance can also be affected by "floor" effects. Subjects listing improvements who were told to give a low number of uses could not list fewer than 0, whereas there was no limit for those with higher goals. Finally, controllability can affect variance. When goals are easily within their reach, individuals can perform exactly in line with their goals regardless of their level of ability; but when goals are beyond their reach, the expression of ability is not restricted and each person tries to perform to the maximum. The more challenging the goals are, the more free rein the individuals have to perform in line with their capabilities, and thus the higher the association between ability and performance (Locke, 1982b; see also Chapter 9). This necessarily makes the variance in performance higher at the higher goal levels. Sample data from three studies (taken from Locke, Chah, et al., 1989), are shown in Figure 2-3. In this context controllability in being able to reach the goal is perfectly and negatively associated with the opportunity and encouragement to perform at one's maximum ability level. Erez and Zidon (1984) also found goal difficulty to be positively associated with performance variance.

FIGURE 2-3 Relation between Performance S.D. and Goal Level

Reprinted from E. A. Locke, D. O. Chah, S. Harrison, and N. Lustgarten (in 1989), "Separating the Effects of Goal Specificity from Goal Difficulty," *Organizational Behavior and Human Decision Processes*, 43, 283. Reprinted by permission of Academic Press.



The Locke, Chah, et al. (1989) results for specificity were replicated in part by Klein, Whitener, and Ilgen (1988) using a correlational design. Difficulty was related to performance when specificity was partialled out; high specificity was associated with small goal-performance discrepancies. They also found an independent effect of goal specificity on performance. However, there are a number of potential weaknesses and ambiguities in the study, most resulting from the fact that difficulty and specificity were not experimentally manipulated. For example, difficulty and specificity were highly and negatively correlated. Moreover, there could have been error in the measurement of goal specificity and difficulty, especially since the goal measure consisted of a single self-report item. Finally, it is not clear if individuals with the most specific goals were trying for exactly that number or more than that number (see Chapter 6 for a further discussion of this issue).

Wofford (1982, study 3) also claimed to have found a specificity effect on level of performance. Three types of performance goals were assigned on a paper moon construction task: very specific (20), moderate range (18–22) and wide range (15–25). Only the very specific group attained a score of more than 18 (18.3), indicating that the goal of 20 was a hard goal. It is probable, therefore, that the operative (personal) goals for the moderate-range subjects were closer to 18 than 22, and that the personal goal for the wide-range subjects was closer to 15 than 25. In fact, neither of these two groups attained an average of 15. If 20, 18, and 15 are taken to be the actual goals of the three groups, then the mean performance ranking is identical to that of the goals. This means that the goal specificity manipulation was probably a disguised goal difficulty manipulation. Quite different results might have been obtained if all three groups had been given goals within a fully controllable performance range.

Performance with Multiple Goals

Nearly all goal setting studies have used single goals, i.e., goals for performance on one task. In most jobs, of course, individuals pursue goals on more than one task. Furthermore, these goals frequently differ in priority or importance. In many goal setting studies subjects were told to try for a certain number of *correct* answers, which implies both quantity and quality, but both dimensions were for a single task and separate goals were not assigned for each outcome.

A few goal setting studies, however, have involved goals on more than one task. Some of these involved simultaneous, dual-task experiments. Erez, Gopher, and Arazi (1987) had subjects work simultaneously on a typing and a classification task. The level of goal difficulty for each was systematically varied. As the difficulty level of the goal for one task was raised, the difficulty level of the goal for the other task was lowered. Performance was proportional to goal difficulty in all cases.

In another dual-task study (Schmidt, Kleinbeck, & Brockman, 1984), subjects simultaneously worked on a tracking task and an auditory reaction time task. When subjects were given a goal to improve their tracking performance, reaction time slowed even when subjects were trying to maintain it. Similarly, when subjects were given a goal to improve their reaction time, tracking error increased even when subjects were trying to maintain it. Kleinbeck (1986)

reported several experiments, in addition to the above, with the same tasks which yielded similar results. He also reported that tracking error increased, not only during the time the subject was actually reacting to the auditory stimulus but also just before the signal was expected.

These studies illustrate the well-known fact that people have limited cognitive capacity. When cognitive resources (e.g., attention) are allocated to one task, they must, in part, be withdrawn from the other tasks and may be withdrawn even in anticipation of performing another task.

In most real-life situations goals do not have to be pursued simultaneously in the literal sense of the term, as was required in the experiments by Erez and Kleinbeck and their colleagues. Goals normally extend over a period of weeks, months, or years, and the individual can pursue the goals sequentially and/or cyclically. For example, a factory supervisor could focus one day on product quality, the next few days on quantity, and then on staffing, and then repeat the cycle the next week. A supervisor could also focus on each goal at different times during a single day. In addition, goals are often causally interrelated in a positive way so that actions taken to attain one goal help rather than hinder the attainment of other goals. For example, staffing a department with top-quality people could facilitate both quality and quantity of performance.

Ivancevich and his colleagues are the only goal setting researchers to have done extensive work with multiple goals in field settings. For example, in one study of first-line supervisors in the production and marketing departments of two plants, goals were assigned for quantity, quality, grievances, and absenteeism. All the goals led to improved performance in the plant with high top management commitment to the program (Ivancevich, 1974). In another study goals were assigned to or set participatively with salespeople for customer calls, costs, and sales. Performance of those with goals, regardless of how they were set, improved significantly more than for a control group (Ivancevich, 1976). In a subsequent study technicians were assigned or participatively set goals for absences, service complaints, costs, and lost time due to accidents. Technicians with goals improved significantly more than those without goals on three of the four measures (Ivancevich, 1977).

In yet another experimental study Ivancevich and Smith (1981) found that training in goal setting for sales managers affected both their rated behavior toward their salespeople and the sales performance of these salespeople. Ivancevich and McMahon (1982) found that, for engineers, goals setting plus self-feedback had significantly greater effects on measures of cost, quality, and unexcused overtime (a measure of efficient time use) than no goals. They had no effect on supervisory ratings of performance.

Ivancevich and McMahon (1977a, b, c) have conducted a number of correlational studies of technicians using the same four goals as in the Ivancevich (1977) study plus some additional subjective measures (supervisor ratings of effort). The results were variable, with the relation of goal attributes to performance being a function of growth need strength, race, and education.

The largest number of different goals given in any study to date was twelve. Nemeroff and Cosentino (1979) assigned management trainees goals to improve twelve different behaviors during a training program. Significant im-

provement was shown on all twelve behaviors as compared with subjects without goals.

Pritchard et al. (1988) reported the result of a large-scale goal setting program involving five organizational units of an Air Force base. Multiple indicators of performance were derived for each unit and translated into a common quantitative scale. The scale scores on the different indices of performance were summed to form an overall score. The number of separate indicators used was between 5 and 13 in each unit (R. Pritchard, personal communication). Providing the units with feedback and goals led to dramatic increases in overall performance.

Both productivity and rework goals were assigned to manufacturing supervisors in a study conducted by Stedry and Kay (1966). The results were somewhat confusing, but generally the overall performance improved most when the total challenge of the two goals was highest, but not so high as to be viewed as impossible.

The above studies indicate quite clearly that individuals can successfully pursue multiple goals. This might lead one to ask, "How many different goals can an individual manage or regulate?" No meaningful answer can be given to this question if posed in this form, because there are simply too many contingencies that could affect the answer. These include the following:

1. The individual's cognitive capacity or ability
2. The total amount of time available for goal completion
3. The complexity of the goals and tasks
4. The difficulty of the goals and tasks
5. The degree to which attainment of a given goal affects the attainment of other goals
6. The degree to which responsibility for goal-related performance can be delegated
7. The degree to which the goals must be attained sequentially or simultaneously
8. The quality or suitability of the individual's task strategies

Obviously this is a topic rich with research possibilities.

Effects of Goal Importance or Prioritization

In the studies by Ivancevich there was no evidence that the various goals given to the employees differed as to priority or importance. By implication they were all of equal priority. One would expect, however, that if people regulate their actions by means of goals, they would act in accordance with the relative importance of the different goals. The studies by Erez and Kleinbeck and their colleagues discussed earlier clearly indicate that manipulating the difficulty of the goal on a task in a simultaneous, dual-task situation has the effect of giving more priority to the task with the harder goal at the expense of the task with the easier goal. Similarly, Terborg and Miller (1978) found that subjects given quantity goals on a toy-assembly task produced a higher quantity of output than those assigned quality goals. The opposite outcome occurred for those given quality goals.

The only study to have looked at the effect of quantitative variations in degree of goal importance is the bank loan simulation study by Edmister and Locke (1987). Three-person loan teams set their own weights for each of four goals: loan portfolio yield, net income, charge-offs, and credit file deficiencies. Goal weights were significantly associated with performance for three of the four goals; that is, subjects performed better with respect to a given goal when its weight or importance was higher than when it was lower.

The above studies suggest that subjects can effectively prioritize goals and act in accordance with those priorities. As in the case of multiple goals, we do not know how many goals people can successfully prioritize in action. This presumably depends on many factors, including the individual's ability, the number of different goals, the degree to which clear measurement of performance is provided, and the ease with which different priorities can clearly be tied to different outcomes.

Effects of Goals on "Intrinsic" Motivation

The concept of intrinsic motivation has long puzzled many industrial-organizational psychologists. Some have argued that intrinsic motivation is that which comes from the task itself, whereas extrinsic motivation comes from sources outside the task. However, this distinction is not valid because motivation is not something inside or outside the task but rather something inside the person. The issue has been further confused by Deci and his colleagues. In a convoluted and constantly changing analysis of the concept, Deci and Ryan (1985) argued that intrinsic motivation was based on a need for self-determination (choice) and competence. It was allegedly aroused or maximized when the individual was free from external constraints and from internal doubts and compulsions, felt a strong internal locus of causality, undertook challenging tasks, and received positive but non-controlling feedback regarding performance. Ideally, intrinsic motivation is measured, according to Deci and Ryan, by allowing the individual a free choice of activities, and observing how much time he or she chooses to spend on them.

Deci is most well known, of course, for the finding that, under some circumstances, giving individuals extrinsic rewards such as money for performing a task leads to lower intrinsic motivation after the rewards are withdrawn than would have existed had the rewards not been offered at all. Deci has argued that money, if its controlling rather than its competency aspect is emphasized, lowers intrinsic motivation because it undermines the individual's sense of choice and self-determination.

There are a number of serious problems with Deci's conceptualization of intrinsic motivation and its application to the effects of rewards. First, virtually no studies (using a behavioral criterion) have verified his interpretation of the reward effect by actually measuring the hypothesized mediating variables and showing that the reward effect works through these variables (e.g., feelings of competence and self-determination). Most studies have been interpreted by making inferences from the experimental design and manipulations rather than from how the subjects actually experience them.

Second, Deci's conceptualization fails to distinguish between liking an activity for its own sake and liking it because it makes one feel competent. A

logically defensible classification of types of motivation might be as follows: *intrinsic motivation* is involved when the pleasure derives from the task activity itself; *achievement motivation* is operative when the pleasure comes from performing well in relation to a standard or goal; and *extrinsic motivation* is aroused when the pleasure comes from outcomes to which task performance leads. Since the first two are clearly different phenomena, it is doubtful whether their causes are the same. Deci's measure of intrinsic motivation—namely, time spent on an activity in the absence of pressure or external constraints—seems to be more relevant to intrinsic motivation, as we have defined it, than to achievement motivation. The latter would logically be revealed more clearly when performance is undertaken in the presence of standards. Bandura (1986), incidentally, has pointed out that the so-called free choice behavior measure itself is probably not an adequate measure of intrinsic interest or motivation because time can be spent on an activity for many reasons besides interest.

Third, if intrinsic motivation is largely wiped out as Deci has claimed (Deci & Ryan, 1985) by such factors as salient incentives and rewards; competition; imposed goals, standards, and deadlines; pressure; anxiety; self-doubt; conflict; instrumental task consequences; feelings of obligation to others; appraisals of performance by others; negative feedback; surveillance; ego involvement, and the like, then it is doubtful that it has much application to real life. It seems incongruous that the need for self-determination and competence are considered to be, on the other hand, the wellsprings of all human motivation and at the same time so fragile that their effects can be negated by the most common of life's exigencies.

Deci and Ryan have stated explicitly that choice is more important than controllability in arousing intrinsic motivation. If controllability is viewed as being roughly equivalent in meaning to self-efficacy as conceptualized by Bandura (1986), i.e., task-specific self-confidence, then we believe that Deci and Ryan are making a serious error in downgrading its importance. An extensive literature shows that self-efficacy has extremely powerful effects on motivation; it affects goal choice, commitment, persistence, task strategies coping with stress, and, most important, it affects performance directly (Bandura, 1977, 1986). We shall have much more to say about self-efficacy in later chapters.

Deci's theory has been discussed critically and at some length by Bandura (1986) and Locke and Henne (1986), who made several of the points noted above and more. Given the confused state of the theory itself, it would be surprising if any consistent findings emerged from studies of goals and intrinsic motivation. If we consider mainly the studies that used a behavioral criterion of intrinsic motivation, we find that the results are, in fact, very inconsistent. Of course, part of the problem is making clear theoretical predictions.

One can assume that, according to Deci, assigned goals would be considered to be controlling and would thus be expected to undermine intrinsic motivation, as compared, for example, with participatively set goals, self-set goals, or no goals. However, this conclusion would have to be tempered according to whether the goal presented a challenge or conveyed competency information. It could be argued that easy goals would be less detrimental than hard goals, since the former would result in more positive feedback; on the other hand, hard goals

provide greater challenge. Finally, initial task interest could interact with the above, since there is more leeway for undermining interesting tasks than boring tasks.

Let us consider the studies that examined the effects of imposed or assigned deadlines or goals first. Amabile, DeJong, and Lepper (1976) found that setting task deadlines led to lower intrinsic motivation in word games than not setting deadlines. If deadlines are viewed as analogous to assigned goals, this study could be seen as supporting Deci's theory. Consistent with the results of Amabile et al., Cellar and Barrett (1987) found that perceived degree of influence in goal setting was related to intrinsic motivation. However, this perception was apparently not related to the actual goal manipulation (assigned vs. self-set).

In contradiction to the above findings, Chang and Lorenzi (1983) found that *both* participatively set and assigned goals enhanced intrinsic motivation on an interesting task in comparison with a boring task. On the boring task, assigned goals led to greater intrinsic motivation than participatively set goals ($p < .10$). In partial contradiction to these results, Mossholder (1980) found that assigned goals reduced intrinsic motivation on an interesting task as compared with no goals, but increased it on a boring task. To confuse matters further, on a task that they described as "moderately interesting," Shalley, Oldham, and Porac (1987) found that assigned goals led to greater intrinsic motivation than participatively set goals. Hirst (1988) claimed to have obtained a finding parallel to Mossholder's in that goal setting undermined intrinsic motivation when the task was more complex and enhanced it when the task was simpler. However, Hirst used an attitudinal rather than behavioral measure of intrinsic motivation.

It appears that there are complex interactions between task interest and degree of participation in goal setting, but even these interactions show no consistent pattern. Cellar and Barrett's (1987) finding for perceived influence is congruent with Deci's theory, but their results suggest that his perception may not be closely tied to the *actual* origin of the goals. If this is the case, it may be that assigned goals and incentives will *not* undermine intrinsic motivation as long as they are not perceived as controlling. However, we do not know what factors determine how goals and incentives will be perceived.

In a study of self-set goals, Hom (1985) found that such goals slightly increased intrinsic interest as compared with no goals when there was no reward for performance. The same finding emerged even more strongly when there were rewards for performance for subjects high in achievement motivation. In contrast, self-set goals lowered intrinsic motivation for subjects low in achievement motivation in the reward condition. The existence of complex three-way interactions like this one make it clear that the phenomenon of intrinsic motivation is far from being understood.

The results are no more consistent when degree of success in attaining the goals is taken into account. Shalley and Oldham (1985) found complex interaction effects when they manipulated goal difficulty and expectation of evaluation, but examination of their Figure 1 suggests that intrinsic motivation was considerably higher following success in attaining goals than failure. In contrast, Garland (1983) found no effect of easy vs. hard goals on the decision to work additional trials on an object-listing task after the formal experiment was over, although

subjects were not actually given the chance to do the extra work. Finally, Cellar and Barrett (1987) found that perceived (rather than objective) goal difficulty was positively related to intrinsic motivation (time spent on a computer task). The difficulty effect could be related to Deci's concept of challenge, but just where challenge leaves off and failure and negative feedback begin is not made clear in the theory. In Garland's (1983) study the subjects with hard goals never succeeded and those with easy goals often succeeded, but there were no differential effects of the goals. Greater challenge, of course, implies less positive feedback than lesser challenge. Since challenge and positive feedback may be negatively associated and yet are both asserted to increase intrinsic motivation, this adds confusion to the theory.

To cap the confusion are two studies comparing the effects of proximal and distal goals on intrinsic motivation. Bandura and Schunk (1981) found that proximal goals produced higher intrinsic motivation than distal goals on an arithmetic task. However, Manderlink and Harackiewicz (1984) found the opposite with a word game and an attitudinal measure of motivation. It should be recognized, however, that the former study compared daily with weekly goals while the latter compared two-minute with twenty-two-minute goals.

In conclusion, little can be concluded about the effects of goals on intrinsic motivation. The extant research raises more questions than it answers. Part of the problem is that Deci's theory is simply not well enough developed and articulated to make clear predictions possible. Furthermore, studies of intrinsic motivation typically fail to measure the mediating variables asserted to be responsible for its effects. Finally, intrinsic motivation as Deci defines it (time spent during a free work period) is probably not very significant in the world of work. Work life tends to be governed more strongly by achievement motivation (involving imposed standards) and extrinsic motivation (pay, recognition, promotion) than by intrinsic motivation. This is not to deny that liking the work one does for its own sake is important for personal happiness; it clearly is. But in real work settings such motivation rarely operates in isolation from other types of motivation. When goals and incentives are in force (as opposed to when they are withdrawn), they are highly effective (Locke et al., 1980).

Effects of Proximal Goals, Distal Goals, and Subgoals

A number of goal setting studies have compared the effects of proximal or short-term goals with those of distal or long-term goals, or what is equivalent, the effects of subgoals (or end-goals accompanied by subgoals) with the effects of end-goals alone (Bandura, 1986). Goal setting theory makes no predictions about the relative effectiveness of each type of goal. Favoring proximal goals and subgoals is the argument that such goals might entail more frequent feedback regarding progress in relation to end-goals than would end-goals alone (Bandura, 1986). Furthermore, proximal goals and subgoals might be more psychologically "real" to individuals than distant goals and thus might prevent procrastination and premature discouragement (Bandura, 1986). Favoring distal goals and end-goals is the argument that they are more flexible and can more readily be adjusted to short-term circumstances and contingencies. Favoring equality between the two types of goals is the fact that tracking of end-goals is still possible in the absence of

subgoals; in such a case there would be no feedback advantage to proximal goals. Adding to the uncertainty is the fact that we have little knowledge about the ideal time span for a goal. It is likely that goals that are too proximal or frequent will be viewed as intrusive, distracting, and annoying and thus will be rejected. In contrast goals that are too distal will be seen as unreal and unworthy of serious or immediate attention. The ideal time span, of course, could differ with different tasks and situations and with different types of people.

Given the above, it will not be surprising to learn that the research findings on this matter fail to reveal consistent findings. Three experiments favor proximal goals. Bandura and Schunk (1981) and Bandura and Simon (1977) found that daily goals were more effective than weekly (seven-day) goals in improving performance in arithmetic and in facilitating weight loss, respectively. Bandura and Simon (1977) also found that some subjects given distal goals actually set proximal goals; this manipulation check has rarely been made in other studies on this topic. It was subjects who actually used proximal goals, regardless of experimental condition, who lost more weight than those who used distal goals or had no goals. Morgan (1985) found that students who set multiple subgoals for each study session in a course did better in the course than students who set only a single, broad goal for each study session. This manipulation, however, seems to have confounded distal-proximal with number of goals and goal specificity.

Contextual results were obtained by Dubbert and Wilson (1984), who found that daily calorie goals were not superior to weekly goals initially. However, in a three-month follow-up, only those using proximal goal setting continued to lose weight. Yet another weight loss study was conducted by Kinsey (1983), who assigned daily and weekly goals for eating. There was no difference in weight loss for the two goal groups for those high in internal locus of control, whereas the distal goal setting was more effective for those high in external locus of control. The authors hypothesized that weekly goals give externals more flexibility and that this meshes well with their allegedly more erratic goal setting and work patterns. This study did not use manipulation checks to determine the actual frequency of goal setting by subjects in the two conditions.

A final weight loss study (Zegman & Baker, 1983) claimed that distal calorie goals worked better than proximal goals in reducing calorie intake and weight loss, although both were actually effective. However, in this study proximal and distal goal subjects actually had the same daily calorie goals. The proximal goal subjects recorded food intake and added up their calories after each meal or snack, whereas distal subjects recorded food intake but did not add up their calories until the end of the day. The real difference, then, was one of feedback frequency and flexibility rather than goal proximity.

Several studies found no difference in the effects of proximal and distal goals. Hall and Byrne (1988) found that subjects in an exercise class did not differ significantly in number of sit-ups when given goals for each weekly session plus a three-week end-goal vs. just an end-goal. On an absolute basis, the end-goal subjects performed slightly below the level of the subgoal subjects. Martin et al. (1984) found no difference in the effects of one-week and five-week goals for exercise on physical fitness. Locke and Bryan (1967) also found no significant difference between an end-goal condition and an end-goal plus subgoal condition using an addition task. The time span for subgoals was fifteen minutes, while that

for the end-goal was two hours. In absolute terms the end-goal subjects performed somewhat better than the subgoal subjects. Locke and Bryan suggested that subgoal subjects in this study may have used the subgoals as performance limits rather than as minimums. It should be noted that the end-goal or distal goal time span of two hours in this experiment was shorter in time span than any of the proximal goals used in other studies.

Manderlink and Harackiewicz (1984) found no difference in the effects of distal and proximal goals for a word-puzzle game. Like the Locke and Bryan study, both the proximal and distal goals were very short term. The proximal goals were, in effect, two-minute goals (one for each two-minute trial), while the distal goals were twenty-two-minute goals (one for all trials combined).

A final study that measured both proximal and distal goals was that by Brief and Hollenbeck (1985). In a study of goals set spontaneously by insurance salespeople, they found that some salespersons set proximal goals for sales behaviors such as customer calls and some set distal goals for outcomes such as sales commissions. Only the distal sales commission goals were significantly related to commissions earned. However, the causal relationship between the proximal goal of making calls and sales commissions may be slight or nonexistent. A more logical comparison would have been between proximal sales goals (e.g., weekly, monthly) and distal sales goals (yearly). Such a comparison would only be possible if the salespeople had actually set proximal sales goals, which does not seem to have been the case.

A number of studies have looked at the effects of proximal and distal planning rather than of goal setting. The results here are no more consistent but, on the surface, have seemed more likely to favor distal than proximal planning. Kirschenbaum, Humphrey, and Malett (1981) found that elaborate daily study plans, which must have been highly burdensome, led to fewer hours spent in study than less elaborate and burdensome monthly plans. However, there were no effects of planning condition on grades. Furthermore, there is a certain confusion in this study regarding what type of planning was actually done in the various experimental conditions. For example, all subjects did daily study monitoring, which could easily have led distal subjects to set some type of daily goal. Furthermore, the distal-planning subjects actually handed in more plan sheets to the experimenter than the proximal-planning subjects. In a one-year follow-up to this study, Kirschenbaum, Malett, Humphrey and Tomarken (1982) found that for those with higher GPA's, subjects in the distal-planning condition got better grades than those in the proximal-planning condition. However, this effect did not occur for those with lower GPA's. In another study Kirschenbaum, Tomarken, and Ordman (1982) found no difference in the grades of daily and monthly planners; furthermore, the daily planners spent somewhat more time studying than the monthly planners. Again there was possible confounding because both the daily and monthly planners had to hand in weekly reports regarding their activities. Also, in this study, having the choice of being in the daily or monthly planning condition had a much stronger effect on grades than being in the daily or monthly condition as such.

In conclusion, no definite conclusions can be drawn from the studies of proximal and distal goals, although we can formulate some tentative hypotheses. There is some suggestion that, at least for weight loss, daily goals are both effective

(as compared with no goals) and typically more effective than weekly goals. There is little evidence of any differential effectiveness of proximal and distal goals within a typical experimental work period of two hours or less. In a separate review of goal setting studies (in which the studies used in each comparison were not listed), Balcazar, Hopkins, and Suarez (1986) concluded that the effects of daily and weekly goals showed equal consistency of results across studies but that both showed more consistent results than studies of monthly goals. The study by Martin et al. (1984) noted above, however, did not agree with this conclusion. The studies of distal vs. proximal planning cannot really be evaluated, since there is reason to believe that the monthly planners in these studies also had daily plans.

Kirschenbaum (1985) has reviewed the proximal-distal literature on goal setting and planning and has concluded that there is "overall consistency of the findings" (p. 503), especially with respect to the alleged superiority of distal over proximal planning. We cannot agree with his conclusions, especially since they were based in part on misinterpretations of a number of the studies. For example, he denied that Bandura and Simon's (1977) study showed that proximal goals were superior to distal goals even though that is exactly what it showed. In addition, he used the method of "criterion-switching" to evaluate the results of studies, so that, for example, if the performance data did not come out, he emphasized attitudinal or attendance outcomes (e.g., pp. 500-501).

We believe that much more research needs to be done before firm conclusions can be drawn about the relative efficacy of proximal and distal goal setting. These studies need to

1. Perform manipulation checks to determine what goals people in the various goal conditions *actually* set or tried for, regardless of the experimental condition they were placed in.
2. Determine whether proximal and distal goal groups had equivalent amounts of feedback regarding progress in relation to goals. Feedback given to distal goal subjects, of course, can function as a proxy for proximal goals, thus making the treatments difficult to separate in practice.
3. Encompass a wide range of time spans—from minutes, to hours, to days, to weeks.
4. Determine whether goal commitment is different for proximal and distal goal subjects.
5. Measure and control for possible confounding and/or mediating factors, such as burdensome record keeping, degree of choice over type of goal, degree of flexibility in applying goals, and degree of perceived success and failure in goal pursuit.
6. Consider the possible effects of the nature of the task and individual differences among subjects with respect to personality, cognitive style, and the like.

Goals as Mediators of the Effects of External Incentives

In his 1968 article, Locke argued that goals or goal commitment might mediate the performance effects of incentives such as money, feedback, and participation (Locke, 1968b). There is strong evidence for the mediating effects of goals in feedback; this issue is examined in Chapter 8. There is some evidence for the

mediation hypothesis with respect to participation in goal setting, but as we shall see in Chapter 7, it is hard to test the hypothesis because participation in goal setting does not have very reliable effects. With respect to monetary incentives the jury is still out, since the evidence is conflicting. These results are discussed in Chapter 6. (For a discussion of the early studies of mediation, see Tolchinsky & King, 1980.)

CONCLUSION

Goal setting theory is based on the results of some 393 findings on the goal difficulty and difficulty vs. do best aspects of the theory alone. The success rate or partial success rate of these studies, regardless of study quality, is over 90%. The core findings of the theory are based on data from close to forty thousand subjects in eight countries; eighty-eight different tasks; numerous types of performance measures; laboratory, and field settings; experimental and correlational designs; time spans ranging from one minute to three years; studies of assigned, self-set, and participatively set goals; and data from the group and organizational as well as the individual level of analysis. The overall validity and usefulness of the theory is attested to by meta-analyses, enumerative reviews, peer evaluations, and comparative assessments of goal setting against other theories. Goals also affect action: when they are nonquantitative, when they are general, when there are multiple goals, and when they are prioritized. (These results answer most of the criticisms concerning the limitations of goal theory made by Austin & Bobko, 1985.)

Thus far, however, we have presented only the core findings. In subsequent chapters the theory is further developed to encompass such issues as self-efficacy, valence, goal mechanisms, goal choice moderators such as commitment and feedback, and affect.